



Biological Technical Report for the

# Portola Center



MAY 2012

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**BIOLOGICAL TECHNICAL REPORT**  
*for the*  
**PORTOLA CENTER**

*Prepared for:*

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# Biological Technical Report for the Portola Center

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## TABLE OF CONTENTS

<b><u>Section</u></b>	<b><u>Page No.</u></b>
<b>SUMMARY .....</b>	<b>V</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 METHODS AND SURVEY LIMITATIONS .....</b>	<b>1</b>
2.1 Literature Review.....	1
2.2 Field Reconnaissance.....	1
2.2.1 Resource Mapping .....	2
2.2.2 Flora .....	2
2.2.3 Fauna.....	2
2.2.4 Focused Botanical Surveys .....	3
2.2.5 Focused California Gnatcatcher Survey .....	3
2.2.6 Jurisdictional Wetlands Delineation .....	4
2.2.7 Special-Status/Regulated Biological Resources .....	5
2.3 Survey Limitations.....	6
<b>3.0 PHYSICAL CHARACTERISTICS.....</b>	<b>6</b>
3.1 Site Description.....	6
3.2 Soils.....	11
<b>4.0 RESULTS OF SURVEY .....</b>	<b>13</b>
4.1 Botany – Plant Communities and Floral Diversity .....	13
4.1.1 Grassland Communities .....	17
4.1.2 Venturan-Diegan Transitional Coastal Sage Scrub .....	18
4.1.3 Other Upland Vegetation Communities.....	23
4.1.4 Wetland Vegetation Communities.....	24
4.1.5 Land Cover Types .....	24
4.1.6 Floral Diversity .....	25
4.2 Jurisdictional Waters.....	25
4.3 Zoology – Wildlife Diversity.....	27
4.4 Sensitive Biological Resources.....	28
4.4.1 Special-Status Plant Species .....	28
4.4.2 Special-Status Wildlife Species .....	37
4.4.3 Special-Status Vegetation Communities.....	50
4.4.4 Wildlife Corridors and Habitat Linkages.....	51

# Biological Technical Report for the Portola Center

---

## TABLE OF CONTENTS (CONTINUED)

<b><u>Section</u></b>	<b><u>Page No.</u></b>
4.5 Regional Resource Planning Context – NCCP Program .....	51
4.6 Opportunities Study Environmental Impact Report Findings .....	57
<b>5.0 ANTICIPATED PROJECT IMPACTS .....</b>	<b>58</b>
5.1 Direct Impacts .....	59
5.1.1 Vegetation Communities .....	59
5.1.2 Jurisdictional Wetlands and Waters .....	65
5.1.3 Special-Status Plant Species .....	65
5.1.4 Special-Status Wildlife Species .....	65
5.1.5 Wildlife Corridors and Habitat Linkages .....	67
5.2 Indirect Impacts .....	67
5.2.1 Special-Status Vegetation Communities .....	67
5.2.2 Jurisdictional Waters .....	67
5.2.3 Special-Status Plant Species .....	67
5.2.4 Special-Status Wildlife Species .....	67
5.2.5 Wildlife Corridors and Habitat Linkages .....	68
5.3 Cumulative Impacts .....	68
<b>6.0 ANALYSIS OF SIGNIFICANCE .....</b>	<b>68</b>
6.1 Explanation of Findings of Significance .....	68
6.2 Direct Impacts .....	69
6.2.1 Special-Status Vegetation Communities .....	69
6.2.2 Jurisdictional Waters .....	70
6.2.3 Special-Status Plant Species .....	70
6.2.4 Special-Status Wildlife Species .....	71
6.2.5 Wildlife Corridors and Habitat Linkages .....	72
6.3 Indirect Impacts .....	72
6.3.1 Special-Status Vegetation Communities .....	72
6.3.2 Jurisdictional Waters .....	72
6.3.3 Special-Status Plant Species .....	72
6.3.4 Special-Status Wildlife Species .....	73
6.3.5 Wildlife Corridors and Habitat Linkages .....	73
6.4 Summary of Impacts and Significance Determinations .....	74

# Biological Technical Report for the Portola Center

---

## TABLE OF CONTENTS (CONTINUED)

<b><u>Section</u></b>	<b><u>Page No.</u></b>
<b>7.0 PROPOSED CONSERVATION AND MITIGATION MEASURES .....</b>	<b>75</b>
7.1 Central/Coastal NCCP/HCP Mitigation .....	75
7.2 Special-Status Vegetation Communities and Jurisdictional Waters .....	80
7.3 Sensitive Wildlife.....	82
7.4 Summary of Mitigation Measures and Significance Determinations .....	83
<b>8.0 ACKNOWLEDGMENTS .....</b>	<b>83</b>
<b>9.0 LITERATURE CITED .....</b>	<b>83</b>

## APPENDICES

- A Plant Species Observed on Site
- B Wildlife Species Observed on Site

## LIST OF FIGURES

1	Regional Map.....	7
2	Vicinity Map .....	9
3	Biological Resources Map .....	15
4	Coastal Sage Scrub .....	53
5	NCCP Minor Amendment .....	55
6	Biological Resources Map with Impacts .....	63
7	Mitigation.....	77

# Biological Technical Report for the Portola Center

---

## TABLE OF CONTENTS (CONTINUED)

<u>Section</u>	<u>Page No.</u>
----------------	-----------------

### LIST OF TABLES

1	Schedule of Surveys.....	2
2	Vegetation Communities and Land Cover Types .....	14
3	Jurisdictional Data Station Results .....	25
4	Jurisdictional Wetlands and Waters.....	26
5A	Special-Status Plant Species Detected in the Portola Center Project Area.....	28
5B	Special-Status Plant Species Evaluated but Determined to not Occur in the Portola Center Project Area .....	29
6A	Special-Status Wildlife Species Detected on the Portola Center Project Site .....	38
6B	Special-Status Wildlife Species Potentially Occurring on the Portola Center Project Site but Not Directly Observed .....	39
6C	Special-Status Wildlife Species Not Expected to Occur on the Portola Center Project Site .....	42
7	Potentially Significant Biological Impacts and Proposed Mitigation Measures in the Opportunities Study EIR.....	57
8	Direct Impacts to Vegetation Communities (Acres).....	61
9	Direct Impacts to Jurisdictional Waters (Acres) .....	66
10	Direct Impacts to Special-Status Plant Species .....	66
11	Direct Impacts Based on NRC 1997 CSS Vegetation Mapping.....	69
12	Summary of Impacts and Significance Determinations.....	74
13	Central/Coastal NCCP/HCP In-Lieu Fee Calculation .....	76
14	Recommended Mitigation for Temporary Impacts to Special-Status Vegetation Communities and Permanent Impact to Jurisdictional Waters .....	81
15	Summary of Impacts and Significance Determinations.....	83



# Biological Technical Report for the Portola Center

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## SUMMARY

The 194.8-acre Portola Center Project Area is located in the northwestern part of the City of Lake Forest, California. Dudek biologists surveyed the Project Area between September 2005 and August 2006, and again in May 2008 and October 2010 to evaluate the presence and potential to occur for sensitive biological resources. The site contains 3.5 acres of grassland plant communities, 76.9 acres of coastal sage scrub communities, 113.3 acres of other upland plant communities and land cover types, and 1.1 acres of jurisdictional waters, including wetlands.

Six pairs of federally threatened coastal California gnatcatcher (*Poliophtila californica californica*) were detected on site. White-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperi*), and loggerhead shrike (*Lanius ludovicianus*) were also detected, however, the nesting status of these species onsite is unknown due to the timing of surveys. Although the timing of surveys does not allow for determination of nesting status, the surveys were deemed adequate for purposes of approving the Minor Amendment to the Central/Coastal Subregion Natural Community Conservation Plan and Habitat Conservation Plan of Orange County (NCCP/HCP). There is no suitable habitat for additional species (e.g., listed species not covered under the NCCP/HCP) that would require additional wildlife surveys. Two California Rare Plant Rank (CRPR) 1B sensitive plant species are present, intermediate mariposa lily (*Calochortus weedii* var. *intermedius*) and Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), as well as two CRPR 4 species, Catalina mariposa lily (*Calochortus catalinae*) and paniculate tarplant (*Deinandra paniculata*).

The Project Area is within the Central/Coastal NCCP/HCP. Due to a mapping error, portions of the Project Area were included as part of the Central/Coastal NCCP/HCP Reserve and Existing Use Area. In June 2009, the Nature Reserve of Orange County (NROC), administrators of the Central/Coastal NCCP/HCP, approved a Map Correction to remove 28.3 acres from the Reserve (City of Lake Forest 2010). In March 2010, the City of Lake Forest approved a Minor Amendment to the Central/Coastal NCCP/HCP allowing 12.07 acres of the Project Area previously designated as Existing Use to be authorized for take of covered species and habitat and establishing necessary mitigation in conformance with the Central/Coastal NCCP/HCP. This mitigation included advanced dedication of 32.4 acres of land, formerly part of the Project Area to the Reserve, as well as provisions for payment of in-lieu mitigation fee and revegetation of southern cactus scrub both within the adjacent Reserve and within the on-site brush management zone.

Significant impacts of the proposed project on biological resource include the loss of 79.72 acres of coastal sage scrub vegetation types (including southern cactus scrub), 2.02 acres of jurisdictional waters, impacts to two plant species covered under the Central/Coastal NCCP/HCP, impacts to several wildlife species both covered and not covered under the Central/Coastal NCCP/HCP, and impacts to a regional wildlife corridor and habitat linkage.

## **Biological Technical Report for the Portola Center**

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Impacts to vegetation communities and species covered under the NCCP/HCP are mitigated through the project's conformance with the Central/Coastal NCCP/HCP; based on these requirements, an estimated 30.21 acres of southern cactus scrub revegetation on site will result as well as current and future open space dedication of 20.23 acres will result in a net balance of 90.81 acres that require mitigation through payment of an in-lieu mitigation fee. In addition, vegetation clearing associated with project grading shall occur outside the nesting season (February 15–July 15) or shall be conducted in a manner that avoids and minimizes impacts to wildlife breeding. Impacts to non-covered jurisdictional waters require mitigation in the form of creation or enhancement of 3.18 acres of jurisdictional waters. These mitigation measures would reduce impacts to biological resources to a less-than-significant level.

# Biological Technical Report for the Portola Center

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## 1.0 INTRODUCTION

The proposed 194.8-acre Portola Center Project Area is located in the City of Lake Forest and the Central/Coastal Subregion Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) of Orange County. Dudek conducted general and focused biological surveys of the property between September 2005 and August 2006, and again in May 2008 and October 2010 to assess existing biological conditions. This report describes the character of the site in terms of vegetation, flora, wildlife, and regional resource planning; evaluates direct, indirect, and cumulative impacts to these biological resources; analyzes the biological significance of the proposed site development in terms of the California Environmental Quality Act (CEQA) and the Central/Coastal NCCP/HCP; and recommends mitigation measures to reduce project impacts to a level below significant, including potential wetlands permitting requirements.

## 2.0 METHODS AND SURVEY LIMITATIONS

Data regarding biological resources present in the Project Area were obtained through a review of pertinent literature and field reconnaissance; both are described in detail below.

### 2.1 Literature Review

Sensitive biological resources present or potentially present on site were identified through a literature search using the following sources: U.S. Fish and Wildlife Service (USFWS) (2011), California Department of Fish and Game (CDFG) (2009 and 2011a–d), California Native Plant Society's (CNPS') online *Inventory of Rare and Endangered Vascular Plants* (CNPS 2011).

### 2.2 Field Reconnaissance

Dudek biologists Vipul R. Joshi (VRJ) and Colin K. Khoury (CKK) conducted vegetation communities mapping, a botanical inventory, and a jurisdictional wetlands delineation in September 2005. Kamarul J. Muri (KJM) and Brock A. Ortega (BAO) conducted a general wildlife survey and focused surveys for the federally listed threatened coastal California gnatcatcher (*Poliophtila californica californica*) in October 2005. Mr. Khoury, Marc C. Doalson (MCD), Clint J. Emerson (CJE), David W. Flietner (DWF), and/or Mr. Joshi conducted focused surveys for special-status plant species in May, June, and August 2006 and May 2008. Mr. Joshi and Patricia C. Schuyler (PCS) updated the jurisdictional wetlands delineation in October 2010. Table 1 lists the dates, personnel, survey focus, and weather conditions for each of the surveys.

# Biological Technical Report for the Portola Center

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**Table 1**  
**Schedule of Surveys**

Date	Hours	Staff	Focus	Conditions
9/8/05	0800–NR	CKK, VRJ	Vegetation mapping and wetland delineation	58°F, 100% cloud cover (cc), winds of 0–3 miles per hour (mph)
10/12/05	0745–1345	KJM	Wildlife, gnatcatcher surveys	57°F–74°F, 0% cc, 1–5 mph winds
10/20/05	0600–1200	BAO	Wildlife, gnatcatcher surveys	63°F–85°F, 100%–50% cc, 0–1 mph winds
10/28/05	0650–1200	KJM	Gnatcatcher survey	56°F–75°F, 0%–30% cc, 1–5 mph winds
5/9/06	0945–1600	CKK, DWF, VRJ	Rare plant survey	58°F–74°F, 100% cc, 0–2 mph winds
6/22/06	0930–1630	CKK, DWF, MCD	Rare plant survey	69°F–85°F, 0% cc, 0–2 mph winds
8/28/06	0830–1545	DWF, CJE	Rare plant survey	75°F–90°F, 0% cc, 0–3 mph winds
5/16/08	1500–1600	DWF	Tarplant census	85°F, 0% cc, 2–5 mph winds
10/27/10	0800–1600	VRJ, PCS	Wetland delineation	NR

NR = Not Recorded

## 2.2.1 Resource Mapping

Plant communities were mapped in the field directly onto a 200-scale (1 inch = 200 feet) color digital orthographic map of the property. These boundaries and locations were digitized by Dudek geographic information system (GIS) technician Mark McGinnis using ArcGIS software.

The vegetation classification system used in this report for mapping purposes follows Gray and Bramlet (1992), and habitat descriptions in this report follow Gray and Bramlet (1992) or Jones and Stokes (1993) with modifications to accommodate the lack of conformity of the observed communities to those included in these references.

## 2.2.2 Flora

All plant species encountered during the field surveys were identified and recorded. Those species that could not be identified immediately were brought into the laboratory for further investigation. Latin and common names of plants follow *The Jepson Manual* (Hickman 1996) or more recently published taxonomical revisions. Where not listed in Hickman (1996), common names are taken from Roberts (1998).

## 2.2.3 Fauna

Wildlife species detected during the field surveys by sight, calls, tracks, scat, or other signs were recorded. Binoculars (7 × 50 power) were used to aid in the identification of observed wildlife. In

## Biological Technical Report for the Portola Center

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addition to species actually detected, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area.

Latin and common names of animals follow Stebbins (2003) for reptiles and amphibians, American Ornithologists' Union (2010) for birds, Baker et al. (2003) for mammals, and Emmel and Emmel (1973) for butterflies.

### 2.2.4 Focused Botanical Surveys

Rare plant surveys were conducted to determine the presence or absence, and if present, the number, of the 48 sensitive plant species considered to have a moderate potential to occur within the Project Area. Most of the focal species have a California Rare Plant Rank (CRPR) of 1B. The locations and number of special-status plant species were mapped when observed in the field on three surveys of the Project Area during the summer of 2006 (May, June, and August). Approximately 3 person-days were required to complete one survey.

The population of paniculate tarplant (*Deinandra paniculata*) was remapped in 2008 after the population had been scraped during fire suppression activities; the number of plants was extrapolated from counts within 13 18-inch by 18-inch subplots (5 within areas mapped as dense tarplant and 8 in the remaining area).

### 2.2.5 Focused California Gnatcatcher Survey

Mr. Muri (Permit # TE051250) and Mr. Ortega (Permit # TE813545) surveyed all suitable habitat areas within the Project Area in October 2005 (Table 1). The surveys were conducted in conformance with the currently accepted protocol of the USFWS (1997). Protocol surveys within an enrolled NCCP/HCP consist of three surveys in all suitable habitat with a maximum of 100 acres surveyed per day.

A tape of recorded California gnatcatcher vocalizations played every 50–100 feet was used to induce responses from potentially present California gnatcatchers. If a California gnatcatcher was detected, tape playback was stopped to minimize potential for harassment. A 200-scale (1 inch = 200 feet) digital ortho quarter quad map of the site overlaid with vegetation polygons and topography was used to map any California gnatcatchers detected. Binoculars (10 × 50 and 8 × 32) were used to aid in detecting and identifying bird species. Weather conditions, time of day, and season were appropriate for the detection of California gnatcatcher. All mapped locations of this species were digitized by Dudek using ArcGIS.

## Biological Technical Report for the Portola Center

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### 2.2.6 Jurisdictional Wetlands Delineation

A jurisdictional delineation was first conducted by Dudek biologists Vipul Joshi (VRJ) and Colin Khoury (CKK) in September 2005. The delineation was updated in October 2010 by Mr. Joshi (VRJ) and Dudek biologist Patricia Schuyler (PCS) to determine if there had been a change in site characteristics since the first delineation and to update the delineation per current delineation procedures and regulatory policy.

Mr. Joshi and Ms. Schuyler delineated the extent of jurisdictional waters within the Project Area. The delineation defined areas under the jurisdiction of the CDFG pursuant to Sections 1600–1603 of the California Fish and Game Code; under the jurisdiction of the U.S. Army Corps of Engineers (ACOE) pursuant to Section 404 of the federal Clean Water Act; and under jurisdiction of Regional Water Quality Control Board (RWQCB) pursuant to Clean Water Act Section 401 and the Porter-Cologne Act. The ACOE wetland delineation was performed in accordance with ACOE methodology (ACOE 1987, 2008; ACOE and EPA 2007). Jurisdictional waters of the United States/State (under ACOE, RWQCB, and CDFG jurisdiction) were delineated based on the presence of surface hydrology. CDFG-jurisdictional areas were delineated to the limits of hydrophytic vegetation associated with stream channels.

The jurisdictional wetlands delineation is informed by evaluation of three criteria: vegetation, soils, and hydrology. Each of these criteria are evaluated and recorded at data station points to establish the limits of jurisdictional wetlands.

#### Hydrophytic Vegetation

During the delineation, a data station point was considered positive for hydrophytic vegetation if it passed the basic dominance test (Indicator 1), meaning that more than 50% of the dominant species sampled were characterized as either obligate, facultative wetland, and/or facultative per the *National List of Plant Species that Occur in Wetlands: 1988 National Summary* (Reed 1988). In those cases where the dominance test failed, the vegetation parameter was reevaluated using the prevalence index (Indicator 2), which takes into account all plant species in the community, not just dominants. All plant species observed during the surveys were identified and recorded. Where plant identification could not be made in the field, a sample was taken and later identified in the laboratory.

#### Hydric Soils

According to the National Technical Committee for Hydric Soils, hydric soils are “soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part” (USDA 1994). Soil pits were prepared

## Biological Technical Report for the Portola Center

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using a “sharp shooter” shovel to determine if hydric soils were present. The presence of hydric soils was determined through consultations with the 1987 ACOE *Wetlands Delineation Manual, Field Indicators of Hydric Soils in the United States* (USDA 2003), the ACOE's *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (ACOE 2008), and Munsell Soil Color Charts. Where feasible, soil pits were prepared to depths ranging from 10 to 16 inches, and dry soils were moistened to obtain the most accurate color. Excavated soils were examined for evidence of hydric conditions, including low chroma values and mottling, vertical streaking, sulfidic odor, and high organic matter content in the upper horizon. Evidence of previous ponding or flooding was assessed along with the slope, slope shape, existing landform characteristics, soil material/composition, and hydrophytic vegetation to determine if hydric soils were present.

### Hydrology

Per the guidelines prescribed in the Arid West Supplement (ACOE 2008), wetland hydrology indicators are separated into four major groups: A, B, C, and D. Group A indicators are based on direct observations of surface flow, ponding, and soil saturation/groundwater. Group B indicators consist of evidence that the Project Area has been or is currently subjected to ponding, including, but not limited to, water marks, drift deposits, and sediment deposits. Group C indicators include signs of previous and/or current saturation, including oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur, both of which are indicative of extended periods of soil saturation. Group D indicators consist of “vegetation and soil features that are indicative of current rather than historic wet conditions and include a shallow aquitard and results of the Facultative (FAC)-Neutral test” (ACOE 2008). Each group is subdivided into primary and secondary categories based on their frequency and reliability to occur in the Arid West region.

### 2.2.7 Special-Status/Regulated Biological Resources

Special-status biological resources are defined as follows: (1) species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened population sizes; (2) species and habitat types recognized by local and regional resource agencies as sensitive; (3) habitat areas or plant communities that are unique, are of relatively limited distribution, or are of particular value to wildlife; and (4) wildlife corridors and habitat linkages. Regulated biological resources may or may not be considered special status, but they meet jurisdictional determination criteria under any of several local, state, and/or federal laws. Such resources may be species locations, habitat, or topographic features such as drainage courses.

## **Biological Technical Report for the Portola Center**

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### **2.3 Survey Limitations**

Limitations of the surveys include a diurnal bias and the absence of trapping for small mammals, reptiles, and amphibians. Surveys were conducted during the daytime to maximize the detection of most animals. Birds represent the largest component of the vertebrate fauna, and because most birds are active in the daytime, diurnal surveys maximize the number of observations of birds. Conversely, diurnal surveys usually result in few observations of mammals, many of which may only be active at night. In addition, many species of reptiles and amphibians are secretive in their habits and are difficult to observe using standard meandering transects.

Wildlife surveys were conducted in the fall which precludes determination of nesting status for most bird species. Surveys were timed to begin immediately following contract authorization in order to initiate evaluation of the NCCP/HCP. The site supports habitat for listed species covered under the NCCP/HCP. There are no listed species not covered under the NCCP/HCP that would have a moderate or high potential to occur onsite. Therefore, surveys were conducted in accordance with the NCCP/HCP and were subsequently evaluated by USFWS and CDFG. The surveys were deemed adequate for purposes of approving the Minor Amendment to the NCCP/HCP. There is no suitable habitat for additional species such that would require additional surveys.

Botanical surveys were conducted during the spring and summer flowering periods of the special-status herbaceous plant species with moderate or high potential to occur on the site (i.e., target special-status plant species). The winter prior to the survey period was characterized by below-average rainfall; rainfall was 6.5 inches for the winter, compared to an average of 13.8 inches. However, several storms occurred late in the season (April and May) and based on phenology of plants observed during the surveys, all target special-status plant species would have been detectable if present on site (Western Regional Climate Center 2011).

### **3.0 PHYSICAL CHARACTERISTICS**

#### **3.1 Site Description**

The Portola Center Project Area is located north of the Intermediate Transportation Corridor (State Route 241) in the northwestern part of the City of Lake Forest, California (Figure 1). The site is mapped in the northeastern quarter of Section 8 on the U.S. Geological Survey (USGS) 7.5-minute El Toro Quadrangle, Township 6 South, Range 7 West (Figure 2). The property is divided by Glenn Ranch Road into northern and southern portions, with Saddleback Ranch Road further dividing the northern part of the site.





**FIGURE 1**  
**Regional Map**

**DUDEK**

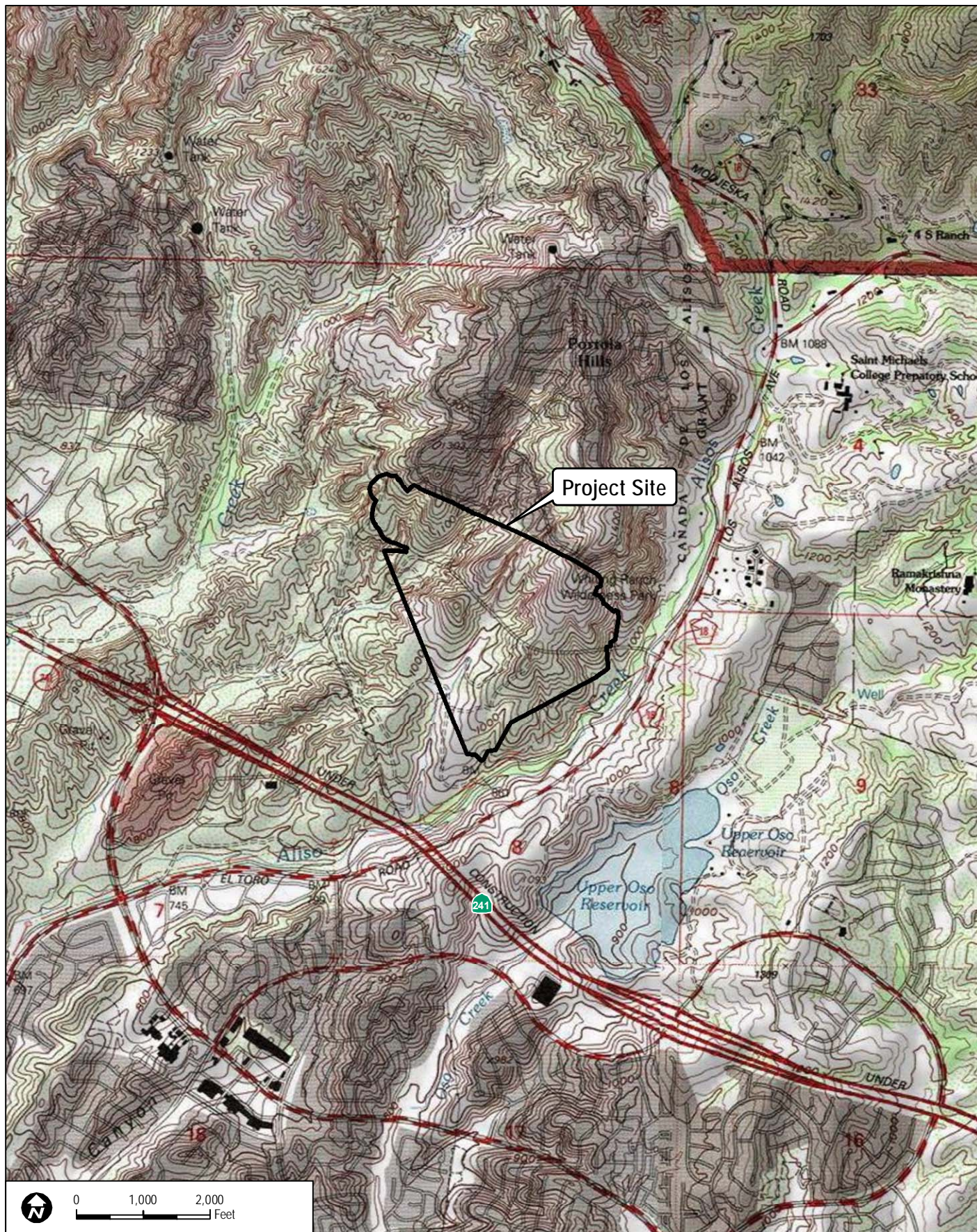
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SOURCE: ArcGIS Online World Topographic Map

Portola Center - Biological Technical Report

**FIGURE 2**  
**Vicinity Map**



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Existing single-family residences are located to the north of the Project site, and open space surrounds most of the areas to the east, south, and west. The main section of Whiting Ranch Wilderness Park (Park) is immediately west of the Project area, and a separate unit of the Park adjacent to Aliso Creek is to the east. These areas are preserved as part of the NCCP/HCP, with the Aliso Creek corridor providing a designated habitat linkage between the Central Subarea and Southern Subregion NCCP/HCP Reserves and the main part of the Park linking to Cleveland National Forest. Open space south of the site is part of an easement for Southern California Edison transmission lines.

A wildfire in October 2007 burned nearly the entire Park and extended into the westernmost portion of the Project Area. Changes in site conditions due to the fire and associated fire-fighting efforts, including construction of fire breaks, are not addressed in this report, with the exception of a census of the paniculate tarplant population within a firebreak area. It is assumed that natural regrowth and succession will return other vegetation to conditions similar to those observed during the pre-fire biological surveys discussed herein.

Portions of the Project Area were graded as part of the Portola Hills development. The Portola Hills Environmental Impact Report (EIR) was approved by the Orange County Board of Supervisors on December 17, 1986. Development of Saddleback Ranch Road and Glenn Ranch Road occurred after that approval and included the establishment of development pads northeast, northwest, and south of the intersection of those roads as well as manufactured slopes, mainly along Glenn Ranch Road. A blue-line stream, tributary to Aliso Canyon Creek, ran roughly north to south in the current location of Saddleback Ranch Road. North of Glenn Ranch Road, this canyon drainage was filled and a retention basin was installed, south of the intersection of the two roads, to receive flows from this area and convey them into the remainder of the canyon to the south of the Project Area.

Currently, the site contains areas between 880 feet above mean sea level (amsl) to 1,275 feet amsl. Natural topography exists in the extreme western, eastern, and southeastern portions of the site and consists of small southward-trending canyons. The remainder of the site consists of previously graded pads, generally with gentle south-facing slopes.

### **3.2 Soils**

The Project Area contains primarily clay loam, clay, and sandy loam soils. Calleguas clay loam, Bosanko clays, and Cieneba sandy loams are the most widespread soil types on the site, with Balcom, Botella, Capistrano, Chino, Myford, and Soper series soils also present (USDA 1978).

## Biological Technical Report for the Portola Center

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Balcom series soils formed from weathering of gray, soft, calcareous shale and sandstone are found on rounded hills from 200–2,300 feet amsl. The soil is moderately alkaline (pH 8.0) and typically extends about 23 inches deep over soft shale or sandstone parent material. The soil is well drained with moderate to moderately slow permeability. It typically supports annual grasses and mustard and is used primarily for range, wildlife, and watershed (NRCS 2007). Balcom clay loam, 30%–50% slopes, occurs on ridges in the eastern portion of the Project Area (USDA 1978).

Bosanko soils formed from weathered igneous granitic rocks occur in upland areas from 300 to 2,500 feet amsl. Bosanko soils are mildly alkaline to medium acid and extend to a depth of about 30 inches. During the dry season, the soil develops deep cracks. It is well drained, with low permeability after the cracks swell shut. Bosanko soils naturally support mainly annual grasses and forbs and are used mostly for growing grain, grain-hay, or pasture (NRCS 2007). Bosanko clays are associated with the presence of several sensitive plant species. Bosanko series soils in the Project Area include Areaare Bosanko clay, 9%–15% slopes; Bosanko clay, 15%–30% slopes; and Bosanko clay, 30%–50% slopes. These soils occur along the canyon bottoms and in lower elevation area in the southeastern part of the site (USDA 1978).

Botella series soils are very deep, well-drained soils that formed in alluvial material from sedimentary rocks. They are found in small valley bottoms and on alluvial fans. This soil is well drained, with moderately slow permeability. It is used for growing crops, orchards, pasture, hay, and range, and it naturally supports annual grasses and forbs with scattered oak trees or coastal sage scrub (NRCS 2007). A small patch of Botella loam, 2%–9% slopes, occurs in a canyon bottom in the central part of the site (USDA 1978).

Calleguas soils formed from weathered sandstone, shale, and mudstone occur on exposed and often eroded south-facing slopes of up to 75%. The moderately alkaline soil is shallow, with a depth of 8–20 inches deep over shale and sandstone. Calleguas soil is well drained and moderately permeable. It is used for grazing and watershed and naturally supports annual grasses and forbs with some coastal sage shrubs (NRCS 2007). Calleguas clay loam, 50%–75% slopes, is the most widespread soil type on site, occurring on slopes throughout the area (USDA 1978).

Capistrano soils formed in alluvium derived from sedimentary or granitic sources are well-drained soils with moderately rapid permeability (NRCS 2007). A small area of Capistrano sandy loam, 9%–15% slopes, is mapped in the northwestern part of the site (USDA 1978).

Chino soils formed in alluvium derived from sedimentary or granitic sources occur in basins and flood plains below 3,100 feet amsl. The topsoil soil is shallow, usually 4 and 12 inches thick, and is well drained with moderately rapid permeability. Chino soils are commonly used for grazing

## **Biological Technical Report for the Portola Center**

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and support annual grass, weeds, and shrubs (NRCS 2007). Chino silty clay loam occurs in a canyon in the south-central part of the site (USDA 1978).

Cieneba series soils formed from material weathered from granite and similar rocks occur in uplands on slopes up to 85%. The shallow (about 10 inches), medium acid soil is somewhat excessively drained and is moderately rapidly permeable. It is used for wildlife, recreation, watershed, and incidental grazing, and it naturally supports chaparral and chamise with widely spread pines or oaks, or occasionally sparse grassland (NRCS 2007). Cieneba sandy loam, 15%–30% slopes, and Cieneba sandy loam, 30%–75% slopes, are mapped primarily in the western part of the site (USDA 1978).

Myford series soils are deep soils that formed on terraces below 1,500 feet. The soil is medium acid (pH 6.0), moderately well drained, and very slowly permeable. It is used for production of citrus, pasture, range, barley, and for urban development, and it naturally supports annual grasses and forbs with some scattered low-growing brush (NRCS 2007). A small patch of Myford sandy loam, 15%–30% slopes, is mapped near the southern tip of the site (USDA 1978).

Soper series soil formed in material weathered from conglomerate and sandstone and occurs on hills and uplands with slopes of 15%–50%. The moderately deep (24–40 inches), well-drained, moderately slowly permeable soils are slightly acidic (pH 6.5). Soper soils are used for dryland pasture, rangeland, watershed, and home sites. The soil naturally supports annual forbs, some native shrubs, and a few oak trees (NRCS 2007). Soper gravelly loam, 30%–50% slopes, occurs on a peak in the central part of the site (USDA 1978).

## **4.0 RESULTS OF SURVEY**

### **4.1 Botany – Plant Communities and Floral Diversity**

Twenty-six vegetation communities or land cover types were identified on site, comprising 193.7 acres of upland types and 1.1 acres of riparian or wetland vegetation. Table 2 provides the acreage of the specific vegetation types on site, the code for the nearest equivalent vegetation type according to the California Natural Diversity Database (CNDDDB), and the corresponding state rarity ranking for that community type (CDFG 2010). The vegetation communities are grouped according to general habitat as listed in the Central/Coastal NCCP/HCP: grassland, coastal sage scrub, and wetland/riparian (County, USFWS, and CDFG 1995). These vegetation types are described below and their locations are shown in Figure 3.

# Biological Technical Report for the Portola Center

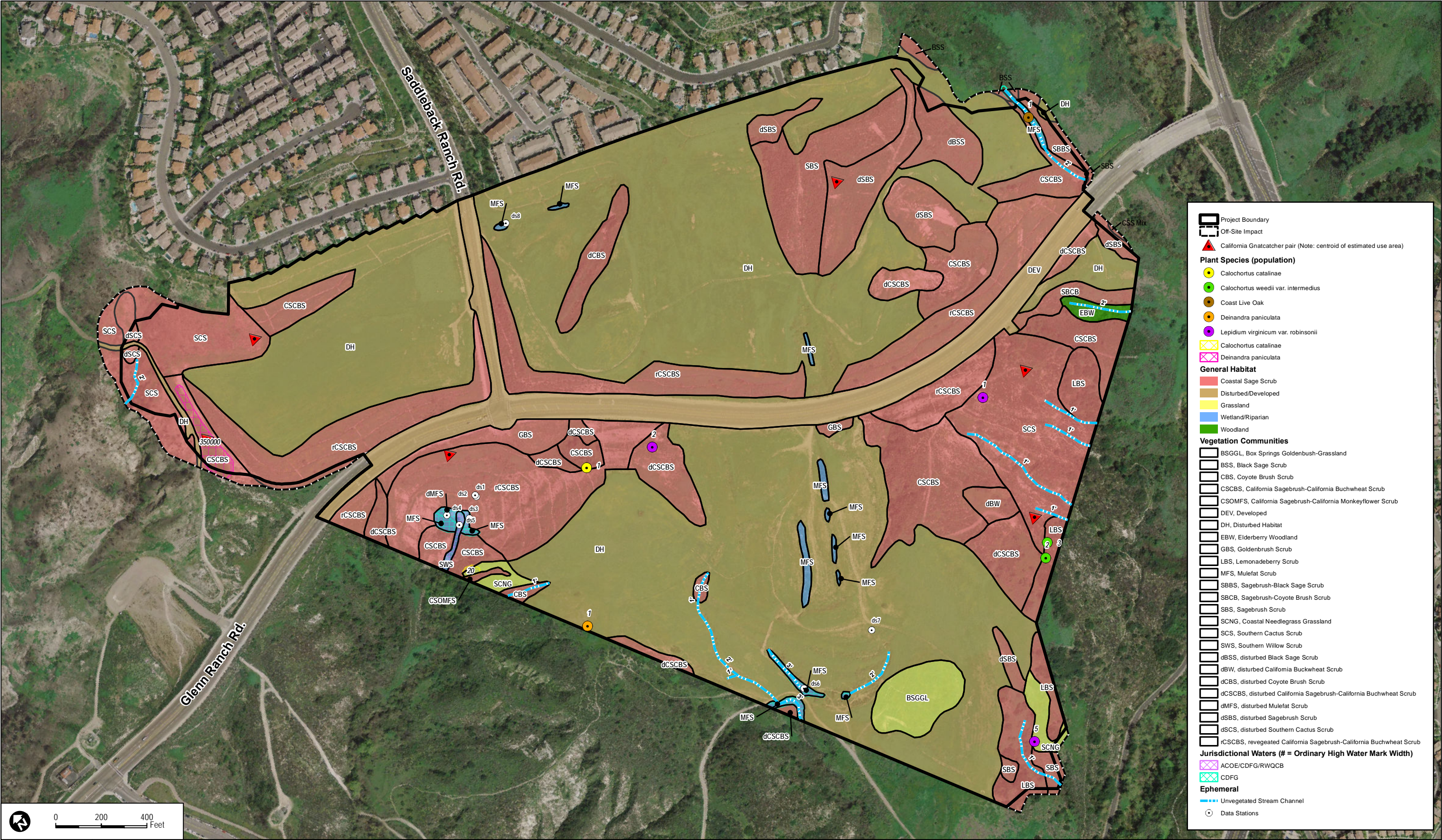
**Table 2**  
**Vegetation Communities and Land Cover Types**

Vegetation Type / Land Cover	CNDDDB Code	State Rank <sup>1</sup>	Map Symbol	Acreage
<i>Upland Vegetation</i>				
<i>Grassland</i>				
Box Springs goldenbush grassland	38.130.00	S3?	BSGGL	2.2
Southern coastal needlegrass grassland	41.150.00	S3?	SCNG	1.2
<i>Subtotal Grassland</i>				<i>3.5<sup>2</sup></i>
<i>Venturan-Diegan Transitional Coastal Sage Scrub</i>				
Black sage scrub	32.020.00	S4	BSS	<0.1
Black sage scrub—disturbed	32.020.00	S4	dBSS	1.7
California buckwheat scrub—disturbed	32.040.00	S5	dBW	0.6
California sagebrush—California buckwheat scrub	32.110.00	S4	CSCBS	13.6
California sagebrush—California buckwheat scrub—disturbed	32.110.00	S4	dCSCBS	5.8
California sagebrush—California buckwheat scrub—revegetated	32.110.00	S4	rCSCBS	23.4
California sagebrush—orange monkeyflower scrub	32.010.11	S5	CSOMFS	0.1
Coyote brush scrub	32.060.00	S5	CBS	0.4
Coyote brush scrub—disturbed	32.060.00	S5	dCBS	1.4
Goldenbush scrub	32.044.00	S4?	GBS	1.7
Lemonadeberry scrub	37.803.00	S3	LBS	4.2
Sagebrush—black sage scrub	32.120.01	S4	SBBS	0.4
Sagebrush—coyote brush scrub	32.060.05	S5	SBCB	0.8
Sagebrush scrub	32.010.00	S5	SBS	5.6
Sagebrush scrub—disturbed	32.010.00	S5	dSBS	5.8
Southern cactus scrub	32.150.00	S3	SCS	11.3
Southern cactus scrub—disturbed	32.150.00	S3	dSCS	0.16
<i>Subtotal Coastal Sage Scrub</i>				<i>76.9<sup>2</sup></i>
<i>Other Upland Vegetation Communities</i>				
Elderberry woodland	63.410.01	S3	EBW	0.5
Mulefat scrub—upland	63.510.00	S4	MFS	0.6
<i>Subtotal Other Upland Vegetation Communities</i>				<i>1.1</i>
<i>Subtotal Upland Vegetation Communities</i>				<i>81.5<sup>2</sup></i>
<i>Wetland / Riparian Vegetation</i>				
Mulefat scrub (CDFG-jurisdictional)	63.510.00	S4	MFS- C	0.70
Mulefat scrub—disturbed (CDFG-jurisdictional)	63.510.00	S4	dMFS	0.1
Southern willow scrub	61.201.00	S4	SWS -A	0.2
<i>Subtotal Wetland / Riparian Vegetation</i>				<i>1.0</i>
<i>Land Cover Types</i>				
Disturbed habitat	N/A	N/A	DH	101.1
Developed	N/A	N/A	DEV	11.3
<i>Subtotal Land Cover Types</i>				<i>112.4</i>
<b>Grand Total</b>				<b>194.8<sup>2</sup></b>

<sup>1</sup> State Rank of imperilment (as measured by rarity, trends, and threats); S1-S3 indicates highly imperiled; ? indicates additional research needed to determine actual imperilment.

<sup>2</sup> Total does not sum due to rounding.







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## Biological Technical Report for the Portola Center

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### 4.1.1 Grassland Communities

#### Box Springs Goldenbush Grassland

Box Springs goldenbush grassland is categorized under the sage scrub–grassland ecotone/sere as an open shrub/grassland with 5%–20% shrub cover, with grasses dominating the overall plant cover; subshrubs and forbs also represent an important percentage of cover. Box Springs goldenbush grassland has Palmer’s goldenbush (*Ericameria palmeri*) as its primary shrub cover (Jones and Stokes 1993). CDFG currently recognizes communities dominated by Palmer’s goldenbush as a Provisional Alliance grouped under Upper Sonoran Subshrub Scrub (CNDDB Code 38.130.00) (CDFG 2010). CDFG does not recognize this community as a grassland community or association between Palmer’s goldenbush and non-native grasses, scrub community.

Box Springs goldenbush grassland occurred on the far southern section of the site, surrounded by disturbed habitat. Dominant grasses within Box Springs goldenbush grassland on-site were non-native, primarily wild oat and bromes. Although CDFG lists *Ericameria palmeri* Provisional Alliance as State Rank 3?, non-native grasslands are listed as State Rank 4. In order to be considered a special-status community, not only must the State Rank be between 1 and 3, but the stand must be considered as a high-quality occurrence of the given community. Given the dominance of non-native grasses within the on-site occurrences of this community, it is not considered a special-status community.

#### Southern Coastal Needlegrass Grassland

Southern coastal needlegrass grassland is a native grassland community with at least 10% of the vegetative cover composed of the perennial needlegrasses, particularly purple needlegrass (*Nassella pulchra*) or intermediate stipa (*N. lepida*). Other species associated with this habitat type include leafy bentgrass (*Agrostis pallens*), junegrass (*Koeleria macrantha*), rattail fescue (*Vulpia myuros*), bromes, blue-eyed grass (*Sisyrinchium bellum*), blue dicks (*Dichelostemma capitatum*), mariposa lily (*Calochortus* spp.), common goldenstar (*Bloomeria crocea*), smooth cat's ear (*Hypochaeris glabra*), and shooting star (*Dodecatheon clevelandii*). This plant community typically intermixes with coastal sage scrub on some clay soils, often on more mesic exposures and at the bases of slopes, but may also occur in large patches (Gray and Bramlet 1992).

On site, wild oat and ripgut grass occurred as the primary non-native grass components of southern coastal needlegrass grassland on site. This community occurred on a single slope near the project’s southern boundary, between native scrub areas. This community has a State Rank of 3, although additional information is needed to precisely determine its imperilment. In order to be considered a special-status community, not only must the State Rank be between 1 and 3, but

## Biological Technical Report for the Portola Center

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the stand must be considered as a high-quality occurrence of the given community. The size of the native grassland stand is small, 1.2 acres, and although it is on the border of the site, it is not part of a larger stand that extends offsite. High-quality occurrences of this community are typically larger or occur as several stands in a given area. The onsite occurrence of southern coastal needlegrass grassland is therefore not considered a special-status community.

### 4.1.2 Venturan-Diegan Transitional Coastal Sage Scrub

Venturan-Diegan transitional coastal sage scrub is the most common vegetation on site, composing approximately 40% of the total land cover. Venturan-Diegan transitional coastal sage scrub is a native plant community occurring throughout Orange County that is characterized by a variety of low-statured, aromatic, drought-deciduous shrubs, such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), California encelia (*Encelia californica*), coastal goldenbush (*Isocoma menziesii*), and sages (*Salvia* spp.). Also present are sclerophyllous (thick, hard leaved) shrub species such as lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). Coastal sage scrub typically develops on steep to moderate south-facing slopes and other xeric areas, mostly below 3,000 feet amsl (Jones and Stokes 1993). Coastal sage scrub is considered a sensitive habitat type because of its depletion over time and the large number of sensitive plant and wildlife species that it supports. Coastal sage scrub is the focus of the State of California's NCCP program and is a covered habitat under the Central/Coastal NCCP/HCP.

Disturbed forms of coastal sage scrub have a similar native species composition, but due to previous, typically anthropogenic, disturbance, they have more non-native weed species and/or bare ground than undisturbed communities. The cover of non-native species and bare ground is between 50% and 80% for the disturbed forms of vegetation communities. Common weedy species on site are tocalote (*Centaurea melitensis*), black mustard (*Brassica nigra*), artichoke thistle (*Cynara cardunculus*), and non-native annual grasses such as wild oats (*Avena* spp.) and ripgut brome (*Bromus diandrus*).

Venturan-Diegan transitional coastal sage scrub on site can be further divided into black sage scrub, California buckwheat scrub (disturbed), California sagebrush–California buckwheat scrub (including disturbed), California sagebrush–orange monkeyflower scrub, coyote brush scrub, goldenbush scrub (including disturbed), lemonadeberry scrub, sagebrush–black sage scrub, sagebrush–coyote brush scrub, sagebrush scrub (including disturbed), and southern cactus scrub (including disturbed) (Gray and Bramlet 1992). A description of each community subtype is provided below. Although only southern cactus scrub and lemonadeberry scrub are listed by CDFG as State Rank 1–3 (both are State Rank 3), all subtypes of coastal sage scrub are considered special status due to regulation under the Central/Coastal NCCP/HCP.

## Biological Technical Report for the Portola Center

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### Black Sage Scrub

Black sage scrub is a coastal sage scrub community dominated by black sage (*Salvia mellifera*), with lesser amounts of other scrub species such as California buckwheat, California sagebrush, chaparral bushmallow (*Malacothamnus fasciculatus*), coastal prickly pear (*Opuntia littoralis*), laurel sumac, bedstraw (*Galium* spp.), white sage (*Salvia apiana*), giant stipa (*Achnatherum coronatum*), and our lord's candle (*Yucca whipplei*). This plant community is known to occur on intermediate slopes below 1,000 feet amsl throughout Orange County (Gray and Bramlet 1992).

Within the site, black sage scrub occurred in the far eastern corner, north of Glenn Ranch Road, adjacent to open space along the project boundary and disturbed habitat within the Project Area. Disturbed black sage scrub occurred in the far eastern corner of the Project Area, north of Glenn Ranch Road, near black sage scrub, but separated by a slope of disturbed habitat. Tocalote, non-native grasses such as wild oat and ripgut grass, and black mustard are dominant in the disturbed area of this vegetation community.

### California Buckwheat Scrub (Disturbed)

California buckwheat scrub is characterized by nearly pure stands of California buckwheat, without the presence of California sagebrush. Any of the other coastal sage scrub shrubs may occur, but in low densities. Buckwheat scrub occurs throughout Orange County in the intermediates and mountains. It is likely a transitional successional stage before California sagebrush–California buckwheat scrub develops, most often occurring on slopes that have been disturbed in the past 10 years (Jones and Stokes 1993).

Disturbed California buckwheat scrub was present in one patch just south of Glenn Ranch Road, adjacent to California sagebrush–California buckwheat scrub and southern cactus scrub.

### California Sagebrush–California Buckwheat Scrub

California sagebrush–California buckwheat scrub is dominated by California sagebrush and California buckwheat, with a diversity of other low-statured shrubs such as black sage, white sage, bush monkeyflower (*Mimulus aurantiacus*), California encelia, deerweed (*Lotus scoparius*), coastal goldenbush, and giant wild rye (*Leymus condensatus*); broad-leaved shrubs such as lemonadeberry, coyote brush (*Baccharis pilularis*), and chaparral bushmallow; and an understory of non-native and native grasses and forbs. California sagebrush–California buckwheat scrub occurs throughout the mountains and low intermediates in Orange County (Jones and Stokes 1993).

## Biological Technical Report for the Portola Center

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California sagebrush–California buckwheat scrub and revegetated California sagebrush–California buckwheat scrub are the most common types of coastal sage scrub on site. California sagebrush–California buckwheat scrub was composed of all species listed in the previous paragraph and smaller numbers of coastal prickly pear, tocalote, wild oats, and ripgut grass. Patches of California sagebrush–California buckwheat scrub occurred throughout the Project Area, generally along project boundaries adjacent to undisturbed open space. The largest section of this plant community within the Project Area was located in the southeast area, south of Glenn Ranch Road.

Revegetated California sagebrush–California buckwheat scrub has a similar species composition, but is the result of planting and seeding revegetation efforts, often occurring on manufactured slopes. Depending on the age and success of the revegetation effort, the plant community may resemble California sagebrush–California buckwheat scrub, or it may have a less diverse species composition, a higher percentage of non-native weedy species, and/or open ground. This vegetation occurred on manufactured slopes on both sides of Glenn Ranch Road and Saddleback Ranch Road.

Disturbed California sagebrush–California buckwheat scrub occurred on site adjacent to non-disturbed California sagebrush–California buckwheat scrub and disturbed habitat. Tocalote, black mustard, and non-native grasses such as wild oats and ripgut grass composed an important proportion of overall cover.

### **California Sagebrush–Orange Monkeyflower Scrub**

California sagebrush–orange monkeyflower scrub is a coastal sage scrub community dominated by California sagebrush and bush monkeyflower, also containing coyote brush, giant wild rye, western poison oak (*Toxicodendron diversilobum*), coastal goldenbush, blue elderberry, and white sage. This plant community is known to occur below 1,000 feet amsl throughout Orange County on mesic intermediate slopes (Jones and Stokes 1993). California sagebrush–orange monkeyflower scrub occurred in a small drainage along the southwestern edge of the site south of Glenn Ranch Road. California sagebrush and monkey flower dominated the community.

### **Goldenbush Scrub**

Goldenbush scrub is not recognized as a native plant community by Gray and Bramlet (1992). Nonetheless, it is a distinct vegetation community in Southern California, dominated by coastal goldenbush and a few mostly soft-leaved subshrubs such as California sagebrush and California buckwheat. Goldenbush scrub occurs mostly in disturbed uplands. It generally is regarded as a post-disturbance successional habitat that typically will develop into coastal sage scrub; it is considered a variant of Venturan-Diegan transitional coastal sage scrub in this report. Because

## **Biological Technical Report for the Portola Center**

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goldenbush scrub is an effective colonizer of disturbed sites, it can be found in upland areas soon after the original disturbance. If coastal sage scrub is disturbed by human activities such as disking or clearing, or by natural disturbances such as fire or landslides, coastal goldenbush is often one of the first woody subshrubs to germinate and begin recolonizing the site. Goldenbush scrub is usually associated with other coastal sage scrub pioneer species such as deerweed and chaparral bushmallow, as well as seedlings of California sagebrush and California buckwheat.

Within the Project Area, goldenbush scrub occurred on flats or gentle slopes adjacent to Glenn Ranch Road. These areas probably were significantly disturbed during construction of the road.

### **Coyote Brush Scrub**

Coyote brush scrub is dominated by coyote brush, with California sagebrush, California buckwheat, bush monkeyflower, coastal goldenbush, giant wild rye, and white sage found in coastal areas of southern Orange County (Gray and Bramlet 1992). The sage scrub community type usually occurs on flats and gentle slopes that have been disturbed within the past 20 years (Jones and Stokes 1993).

Two small regions in the southern section of the site were dominated by coyote brush, with small amounts of other scrub species and open ground. Disturbed coyote brush scrub occurred on a northwest-facing slope surrounded by more level disturbed habitat. Disturbed coyote brush scrub contained a high cover of black mustard and tocalote.

### **Lemonadeberry Scrub**

Lemonadeberry scrub is not recognized as a native plant community by Gray and Bramlet (1992). However, it is a moderately distinct association in coastal San Diego and Orange counties, most closely related to coastal sage scrub. Lemonadeberry scrub is a tall, dense, woody community dominated by lemonadeberry and/or laurel sumac. Understory species include black sage, bush monkeyflower, and a variety of herbs and forbs. It typically occurs on mesic north-facing slopes and the shaded bottoms of drainages. Although the primary components, lemonadeberry and laurel sumac, are most frequently associated with coastal sage scrub, on north-facing slopes these species form a dense, woody, evergreen community that is physiognomically more similar to chaparral.

Lemonadeberry scrub occurred in the southeastern portion of the Project Area. Besides lemonadeberry, dominant species included California buckwheat and California sagebrush.

## **Biological Technical Report for the Portola Center**

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### **Sagebrush–Black Sage Scrub**

Sagebrush–black sage scrub is dominated by California sagebrush and black sage with other common scrub species comprising a smaller proportion of the vegetation cover. The plant community generally grows on south-facing slopes in intermediate and mountain areas (Jones and Stokes 1993).

Sagebrush–black sage scrub occurred near the far eastern edge of the site, just north of Glenn Ranch Road, between areas of sagebrush scrub and black sage scrub.

### **Sagebrush–Coyote Brush Scrub**

Sagebrush–coyote brush scrub, also called sagebrush–coyote brush sage scrub in Gray and Bramlet (1992), is dominated by California sagebrush and coyote brush. This coastal sage scrub community is known to grow in coastal areas of southern Orange County (Jones and Stokes 1993).

On site, sagebrush–coyote brush scrub occurred on one southwest-facing slope in the southeast corner of the site adjacent to elderberry woodland, California sagebrush–California buckwheat scrub, and disturbed habitat.

### **Sagebrush Scrub**

Sagebrush scrub is a coastal sage scrub community dominated almost exclusively by California sagebrush (Jones and Stokes 1993). Sagebrush scrub is found on slopes near the project boundaries, in the northeastern and far southern portions of the site. In addition to California sage brush, small amounts of California buckwheat, black sage, non-native grasses, and totalote are present in the Project Area.

Disturbed sagebrush scrub on site had a high percentage cover of totalote, non-native grasses, and black mustard. Disturbed sagebrush scrub on site was adjacent to sagebrush scrub and disturbed habitat.

### **Southern Cactus Scrub**

Southern cactus scrub consists of scrub vegetation dominated by cacti and coastal sage scrub species. The presence of coastal prickly-pear or pancake prickly-pear (*Opuntia oricola*) at 20% or more relative cover defines this community. This habitat also includes species such as California sagebrush, California buckwheat, black sage, and blue elderberry (Gray and Bramlet 1992).

Southern cactus scrub within the Project Area occurred on undisturbed slopes in the western and southeastern parts of the site. Besides coastal prickly pear, dominant species include California



## Biological Technical Report for the Portola Center

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buckwheat, California sagebrush, deerweed, and sages. Disturbed southern cactus scrub occurred in one small drainage, intersected by a dirt road and surrounded by southern cactus scrub. Non-native species include wild oats, ripgut grass, tocalote, and black mustard.

### 4.1.3 Other Upland Vegetation Communities

#### Elderberry Woodland

Elderberry woodland is an open woodland found on stream benches dominated by blue elderberry, but with scattered laurel sumac, toyon (*Heteromeles arbutifolia*), and lemonadeberry present, as well as an understory of grasses. Elderberry woodland is found in intermediate areas throughout Orange County, on the upper benches of streams, and is often associated with sycamore riparian woodland (Jones and Stokes 1993).

In the Project Area, elderberry woodland occurred adjacent to a drainage along the boundaries in the southeastern section. This community conforms to CNDDDB's blue elderberry stand (CDFG 2010) which has a State Rank of 3. In order to be considered a special-status community, not only must the State Rank be between 1 and 3, but the stand must be considered as a high-quality occurrence of the given community. The onsite stand of elderberry is small in size (0.5 acre) and does not support special-status species or other unique functions or services. The stand is therefore not considered a high-quality and is not considered a special-status community.

#### Mulefat Scrub—Upland

Mulefat scrub is a relatively dense, shrubby community that, while dominated by mulefat (*Baccharis salicifolia*), often contains shrubby willow species, herbaceous facultative wetland species such as western ragweed (*Ambrosia psilostachya*) and California mugwort (*Artemisia douglasiana*), and occasional upland shrub species such as coastal goldenbush. This habitat type typically occurs in intermittent streambed, seeps, and the toe of landslides, where local seeps may develop (Jones and Stokes 1993).

Within the Project Area, mulefat scrub occurred in both wetland and upland situations. Mulefat scrub—upland included several areas within previously graded pads where mulefat was dominate and other species were limited to non-native herbaceous species such as black mustard and bromes.

## Biological Technical Report for the Portola Center

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### 4.1.4 Wetland Vegetation Communities

#### Mulefat Scrub—Wetland

The general community description of mulefat scrub is listed above. Wetland occurrences of mulefat scrub on site mainly support mulefat with little to no understory. These occurrences are along drainages on site and at the bottom of the retention basin. Within the retention basin, a portion of the mulefat scrub also supported tamarisk (*Tamarisk* sp.) and was, therefore, mapped as disturbed mulefat scrub. Wetland occurrences of mulefat scrub were located above the ordinary high water mark and, therefore, were considered a jurisdictional wetland only by CDFG. This designation means that the community is treated as a special-status vegetation community.

#### Southern Willow Scrub

Southern willow scrub is a broad-leaved riparian community dominated by willows (*Salix* spp.), with lesser amounts of mulefat and occasionally scattered Fremont's cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*). Due to the high density of the shrub canopy, the understory is fairly sparse, but can include California mugwort, curly dock (*Rumex crispus*), nettles (*Urtica* spp.), beard grass (*Polypogon* spp.), and other forbs and grasses. This community is typically found along intermittent streams and creeks in Southern California (Gray and Bramlet 1992).

In the Project Area, southern willow scrub was dominated by arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), and mulefat. The southern willow scrub occurred at the bottom of the retention basin located in the western portion of the Project Area, just south of Glenn Ranch Road. Southern willow scrub on site is wetlands under the jurisdiction of ACOE, CDFG, and RWQCB and is, therefore, considered a special-status community.

### 4.1.5 Land Cover Types

#### Disturbed Habitat

Disturbed habitat refers to areas that lack vegetation but still retain a pervious surface, or are dominated by a cover of ruderal vegetation such as tocalote, wild oats, black mustard, spiny sow thistle (*Sonchus asper*), and prickly lettuce (*Lactuca serriola*). These areas are generally the result of severe or repeated clearing or grading (Jones and Stokes 1993).

Disturbed habitats in the Project Area were generally graded and non-graded spaces containing predominantly ruderal vegetation. Also included were dirt roads and trails, and two large

## Biological Technical Report for the Portola Center

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manufactured slopes below the housing development north of the Project Area, which were maintained with very little vegetative cover, probably for fire protection.

### Developed Land

Developed land describes areas occupied by structures, paving, and other impermeable surfaces that cannot support vegetation or habitat for wildlife. On-site developed lands, which fit into Gray and Bramlet (1992) category Transportation, consist of the land space covered by Glenn Ranch Road and Saddleback Ranch Road intersecting the Project Area.

#### 4.1.6 Floral Diversity

A total of 175 species of vascular plants, including 131 native species (75%) and 44 non-native species (25%), were recorded from the site, including some from areas removed from the current Project Area. The cumulative list of plant species observed is provided in Appendix A.

### 4.2 Jurisdictional Waters

Vegetation, hydrology, and soils were examined at nine wetland sampling points (data stations) on the Project Area (Figure 3) to determine the extent of jurisdictional areas within the Project Area. Table 3 lists the results of these data stations in terms of the three criteria discussed in Section 2.2.6 and the jurisdictional determination.

**Table 3**  
**Jurisdictional Data Station Results**

Data Station	Wetland vegetation	Hydrology	Wetland Soils	Delineation
DS1	Absent	Absent	Absent	None
DS2	Present	Absent	Absent	CDFG wetland
DS3	Present	Present	Absent	CDFG wetland, ACOE/RWQCB intermittent waters
DS4	Present	Present	Absent	CDFG wetland, ACOE/RWQCB intermittent waters
DS5	Present	Present	Present	ACOE/CDFG/RWQCB wetland
DS6	Present	Absent	Absent	CDFG wetland
DS7	Present	Absent	Absent	CDFG wetland
DS8	Absent	Absent	Absent	None

Most of the Project Area hydrology has been modified by grading and installation of drainage structures. The central portion of the site consists generally of graded pad areas with earthen drainages, some with riprap, as well as a large manufactured retention basin immediately south

## Biological Technical Report for the Portola Center

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of Portola Parkway. Wetlands and non-wetland waters under the jurisdiction of the ACOE, CDFG, and/or RWQCB in the Project Area total 1.26 acres, composed of 1.09 acres of wetlands and 0.16 acres of unvegetated ephemeral waters. Wetland vegetation communities on site include mulefat scrub and southern willow scrub. Table 4 lists the jurisdictional areas and acreages in the Project Area.

**Table 4**  
**Jurisdictional Wetlands and Waters**

Wetlands Vegetation Community	Jurisdiction	Acres
Mulefat scrub	CDFG	0.70
Mulefat scrub—disturbed	CDFG	0.12
Southern willow scrub	ACOE/CDFG/RWQCB	0.17
<i>Total Jurisdictional Wetlands</i>		<i>1.00*</i>
<b>Non-wetland Waters</b>		
Ephemeral waters	ACOE/RWQCB	0.04
Ephemeral waters	ACOE/CDFG/RWQCB	0.11
<i>Total Non-wetland Waters</i>		<i>0.15</i>
<b>Total Jurisdictional Area*</b>		<b>1.15</b>

\* Acreage may not total due to rounding.

\* Total jurisdictional area includes all ACOE/CDFG/RWQCB jurisdiction and CDFG-only jurisdiction. Ephemeral waters listed as ACOE/RWQCB are within CDFG-jurisdictional wetlands and are, therefore, not counted towards the total jurisdictional area.

ACOE and RWQCB—jurisdictional areas on site total 0.32 acre, including 0.17 acre of jurisdictional wetlands composed of southern willow scrub. The remaining 0.15 acre under ACOE/RWQCB jurisdiction consists of ephemeral stream channels.

CDFG jurisdiction extends over all areas under ACOE and RWQCB jurisdiction discussed above and includes areas that meet ACOE wetland (i.e., hydrophytic) vegetation criteria but lack wetlands hydrology and/or hydric soils indicators. CDFG-jurisdictional areas on site total 1.11 acres, including 1.00 acres of riparian areas composed of mulefat scrub and southern willow scrub. The remaining 0.11 acre under CDFG jurisdiction consists of ephemeral stream channels. In total, these areas include 0.70acre of mulefat scrub, 0.12 acre of disturbed mulefat scrub, and 0.17 acre of southern willow scrub throughout the Project Area.

Jurisdictional waters on site include hillside ephemeral drainages flowing generally from north to south into Aliso Creek, which maintains high-quality riparian habitat near the Project Area. Waters that flow through the drainage downstream of the retention basin on site appear to be piped under State Route 241 before discharging into a tributary of Aliso Creek. Aliso Creek flows into the Pacific Ocean, a navigable water of the United States. Jurisdictional waters exhibit wetlands hydrology criteria but do not exhibit hydrophytic vegetation or hydric soils, and they

## Biological Technical Report for the Portola Center

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are, therefore, considered non-wetland waters under the jurisdiction of the ACOE, CDFG, and RWQCB. Waters under ACOE/RWQCB jurisdiction occur within CDFG-jurisdictional wetlands (i.e., drainage features dominated by wetland vegetation but not meeting all three criteria).

### 4.3 Zoology – Wildlife Diversity

Fifty-eight species of wildlife were observed on the site, including 4 reptile species, 42 bird species, 9 mammal species, and 3 invertebrate species, including some from areas not currently in the Project Area. The cumulative list of wildlife species observed is provided in Appendix B.

#### Reptiles and Amphibians

Four common reptiles were observed: western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis cantenifer*), and western rattlesnake (*Crotalus oreganus*). Other common reptiles, such as garter snakes (*Thamnophis* spp.) and southern alligator lizard (*Gerrhonotus multicarinatus*) are also likely to occur. No amphibians were observed during the surveys but there is suitable habitat within the Project Area for these species.

#### Birds

A total of 42 bird species were observed during the surveys. Typical species commonly encountered include western kingbird (*Tyrannus verticalis*), western scrub-jay (*Aphelocoma californica*), Bewick's wren (*Thryomanes bewickii*), California towhee (*Melospiza crissalis*), and western meadowlark (*Sturnella neglecta*). Raptors observed include Cooper's hawk (, red-tailed hawk, (*Buteo jamaicensis*), red-shouldered hawk (*B. lineatus*), white-tailed kite, American kestrel (*Falco sparverius*), and turkey vulture (*Cathartes aura*).

#### Mammals

Evidence of 9 mammal species was noted during the surveys, including coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), and bobcat (*Lynx rufus*).

#### Invertebrates

Three common species of butterflies were noted during the surveys: checkered white (*Pontia protodice*), west coast lady (*Vanessa annabella*), and painted lady (*V. cardui*). Numerous other insects and other invertebrates are expected to occur in the Project Area.

# Biological Technical Report for the Portola Center

## 4.4 Sensitive Biological Resources

The following resources are discussed in this section: (1) plant and animal species present in the project vicinity that are given special recognition by federal, state, or local regulatory agencies and conservation organizations owing to declining, limited, or threatened populations; and (2) habitat areas that are unique, are of relatively limited distribution, or are of particular value to wildlife. In addition to the NCCP/HCP (County, USFWS, and CDFG 1995), sources used for determination of sensitive biological resources are as follows: wildlife, CDFG (2009, 2011a, 2011b), plants, CDFG (2011a, 2011c, 2011d) and CNPS (2011); and habitats, Orange County (County, USFWS, and CDFG 1995) and CDFG (2010).

### 4.4.1 Special-Status Plant Species

A list of all special-status plant species known to occur in the vicinity of the Project Area (the surrounding nine topographic quadrangles) and plant species covered under the NCCP/HCP, with their habitat requirements, potential to occur on the site, and survey observations is provided in Tables 5A and 5B: species detected on site (Table 5A), species evaluated but determined not to occur on site (Table 5B).

**Table 5A**  
**Special-Status Plant Species Detected in the Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	California Rare Plant Rank	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On Site or Potential to Occur
<i>Calochortus catalinae</i>	Catalina mariposa lily	None/ None/ Covered	4.2	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/ bulbiferous herb/ February–May/15–700 meters	21 plants were observed during focused surveys.
<i>Calochortus weedii</i> var. <i>intermedius</i>	Intermediate mariposa lily	None/ None/ Conditionally Covered	1B.2	Chaparral, coastal sage scrub, Valley and foothill grassland, rocky areas/perennial herb/May–July/180–855 meters	Five plants observed during focused surveys.
<i>Deinandra paniculata</i>	Paniculate tarplant	None / None/ None	4.2	Coastal sage scrub, valley and foothill grassland; usually vernal mesic/ annual herb/ April – November/ 25 – 940 m	Observed on site. Estimated population approx. 350,000.

## Biological Technical Report for the Portola Center

**Table 5A**  
**Special-Status Plant Species Detected in the Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	California Rare Plant Rank	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On Site or Potential to Occur
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	None/ None/ None	1B.2	Chaparral, coastal sage scrub/annual herb/January-July/ 1-885 m	Eight plants observed on site during surveys.

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the  
Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
<i>Species with potential to occur but determined to be absent following focused surveys</i>					
<i>Abronia villosa</i> var. <i>aurita</i>	Chaparral sand-verbena	None/ None/ None	1B.1	Chaparral, coastal scrub; sandy/ annual herb/ January – August/80–1600 meters	Suitable habitat present; but not observed during focused surveys.
<i>Allium munzii</i>	Munz's onion	FE/ ST/ None	1B.1	Chaparral, cismontane woodland, coastal sage scrub, pinyon-juniper woodland, valley and foothill grassland, clay soils/perennial herb/ March-May/300–1070 meters	Suitable habitat present; but not observed during focused surveys.
<i>Aphanisma blitoides</i>	Aphanisma	None/ None/ None	1B.2	Coastal bluff scrub, coastal sage scrub, sandy soils/annual herb/March–June/1–305 meters	Suitable habitat present, but not observed during focused surveys.
<i>Astragalus brauntonii</i>	Braunton's milk-vetch	FE/ None/ None	1B.1	Closed-cone conifer forest, chaparral, coastal sage scrub, Valley and foothill grassland, recent burns or disturbed areas/perennial herb/March–July/4–640 meters	Suitable habitat present, but not observed during focused surveys.

## Biological Technical Report for the Portola Center

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the**  
**Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
<i>Atriplex coulteri</i>	Coulter's saltbush	None/ None/ None	1B.2	Coastal bluff scrub, coastal dunes, coastal sage scrub, Valley and foothill grassland, alkaline or clay soils/perennial herb/March–October/ 3–460 meters	Suitable habitat present, but not observed during focused surveys.
<i>Baccharis malibuensis</i>	Malibu baccharis	None / None/ None	1B.1	Chaparral, cismontane woodland, coastal scrub, riparian woodland. One occurrence in Orange County in Black Star canyon/shrub/ August/150– 305 meters	Suitable habitat present, but not observed during focused surveys.
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	FT/ SE/ None	1B.1	Coastal sage scrub, cismontane woodland, Valley and foothill grassland, vernal pools, clays/perennial herb/March–June/25– 860 meters	Suitable habitat present, but not observed during focused surveys.
<i>Calochortus plummerae</i>	Plummer's mariposa lily	None/ None/ None	1B.2	Chaparral, cismontane woodland, coastal sage scrub, lower montane conifer forest, Valley and foothill grassland, granitic soils/perennial herb/May–July/100– 1700 meters	Suitable habitat present, but not observed during focused surveys.
<i>Camissonia lewisii</i>	Lewis's evening primrose	None/ None/ None	3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay annual herb/ March–June/0– 300 meters	Suitable habitat present, but not observed during focused surveys.



## Biological Technical Report for the Portola Center

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the**  
**Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
<i>Centromadia</i> [ <i>Hemizonia</i> ] <i>parryi</i> ssp. <i>australis</i>	Southern tarplant	None/ None/ None	1B.1	Valley and-foothill grassland (vernally mesic), estuary margins, vernal pools/annual herb/May–November/ 0–425 meters	Habitat marginal; not observed during focused surveys.
<i>Centromadia</i> [ <i>Hemizonia</i> ] <i>pungens</i> ssp. <i>laevis</i>	Smooth tarplant	None/ None/ None	1B.1	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland/annual herb/April–September/ 0–480 meters	Suitable habitat present, but not observed during focused surveys.
<i>Chorizanthe parryi</i> var. <i>fernandina</i>	San Fernando Valley spineflower	FC/ SE/ None	1B.1	Coastal sage scrub, sandy soils/annual herb/April–July/150– 1220 meters	Suitable habitat present, but not observed during focused surveys.
<i>Dudleya</i> <i>multicaulis</i>	Many-stemmed dudleya	None/ None/ None	1B.2	Coastal bluff scrub, coastal sage scrub, Valley and foothill grassland, rocky, often clay or serpentinite soil/perennial herb/April–July/15– 790 meters	Suitable habitat present, but not observed during focused surveys.
<i>Dudleya viscida</i>	Sticky dudleya	None/ None/ None	1B.2	Coastal bluff scrub, chaparral, coastal sage scrub, rocky areas/perennial herb/May–June/10- 550meters	Suitable habitat present, but not observed during focused surveys.
<i>Euphorbia misera</i>	Cliff spurge	None/ None/ None	2.2	Coastal bluff scrub, coastal scrub; rocky/ shrub/ December– April/10–500 meters	Suitable habitat present, but not observed during focused surveys.
<i>Hordeum</i> <i>intercedens</i>	Vernal barley	None/ None/ None	3.2	Valley and foothill grassland (saline flats and depressions), vernal pools/annual	Marginal habitat present, but not observed during focused surveys.

## Biological Technical Report for the Portola Center

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the**  
**Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
				herb/March–June/5–1000 meters	.
<i>Horkelia cuneata</i> <i>ssp. puberula</i>	Mesa horkelia	None/ None/ None	1B.1	Chaparral, cismontane woodland, coastal scrub; sandy or gravelly/ perennial herb/ February – September/70–810 meters	Suitable habitat present, but not observed during focused surveys.
<i>Lilium humboldtii</i> <i>ssp. ocellatum</i>	Ocellated Humboldt lily	None/ None/ None	4.2	Chaparral, cismontane woodland, lower montane conifer forest, openings/perennial herb/March–July/ 30– 1800 meters	Suitable habitat present, but not observed during focused surveys.
<i>Quercus dumosa</i>	Nuttall's scrub oak	None/ None/ Covered	1B.1	Chaparral, coastal sage scrub, sandy and clay loam soils/shrub/February– March/15–400 meters	Suitable habitat present, but not observed during focused surveys. .
<i>Romneya coulteri</i>	Coulter's matilija poppy	None/ None/ Covered	4.2	Chaparral, coastal sage scrub, often in burned areas/perennial herb/May–July/20– 1200 meters	Suitable habitat present, but not observed during focused surveys.
<i>Satureja chandleri</i>	San Miguel savory	None/None	1B.2	Chaparral, cismontane woodland, coastal sage scrub, riparian woodland, Valley and foothill grassland/perennial herb/March–May/ 120–1075 meters	Suitable habitat present, but not observed during focused surveys.
<i>Sidalcea</i> <i>neomexicana</i>	Salt spring checkerbloom	None /None/ None	2.2	Chaparral, coastal sage scrub, lower montane conifer forest, Mojavean Desert scrub, playas, alkaline-mesic areas/perennial	Suitable habitat present, but not observed during focused surveys.

## Biological Technical Report for the Portola Center

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the**  
**Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
				herb/March–June/15– 1530 meters	
<i>Symphotrichum defoliatum</i>	San Bernardino aster	None/ None/ None	1B.2	Cismontane woodland, coastal scrub, lower coniferous forest, meadows, marshes and swamps, vernal moist grasslands; near ditches, streams, and springs/ rhizomatous herb/ July– November/2– 2040 meters	Suitable habitat present, but not observed during focused surveys.
<i>Tetracoccus dioicus</i>	Parry's tetracoccus	None/ None/ None	1B.2	Chaparral, coastal sage scrub/shrub/April– May/165–1000 meters	Suitable habitat present, but not observed during focused surveys.
<i>Species with no or low potential to occur and determined to be absent following focused surveys</i>					
<i>Atriplex pacifica</i>	South Coast saltscale	None/ None/ None	1B.2	Coastal bluff scrub, coastal sage scrub, playas/annual herb/March–October/ 0–140 meters	Outside of known elevation range; not observed during focused surveys.
<i>Atriplex parishii</i>	Parish's brittlescale	None/ None/ None	1B.1	Chenopod scrub, playas, vernal pools/annual herb/June–October/ 25–1900 meters	No suitable habitat; not observed during focused surveys.
<i>Atriplex serenana</i> var. <i>davidsonii</i>	Davidson's saltscale	None/ None/ None	1B.2	Coastal bluff scrub, coastal sage scrub, alkaline soils/annual herb/April– October/10–200 meters	Outside of known elevation range; not observed during focused surveys.
<i>Cercocarpus minutiflorus</i>	Small-flowered mountain mahogany	None/ None/ Covered	None	Chaparral (coastal area)/ shrub/ March– May/ <1300 m	No suitable habitat; not observed during focused surveys.

## Biological Technical Report for the Portola Center

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the**  
**Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	Orcutt's pincushion	None/ None/ None	1B.1	Coastal bluff scrub, coastal dunes/ annual herb/ January – August/3–100 meters	No suitable habitat. Not expected.
<i>Chorizanthe xanti</i> var. <i>leucotheca</i>	White-bracted spineflower	None/ None/ None	1B.2	Desert scrub, pinyon and juniper woodland, annual herb/April– June/300–1200 meters	No suitable habitat; not observed during focused surveys.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Summer holly	None / None/ None	1B.2	Chaparral/shrub/April– June/30–550 meters	No suitable habitat; not observed during focused surveys.
<i>Dodecahema leptoceras</i>	Slender-horned spineflower	FE/ SE/ None	1B.1	Chaparral, coastal sage scrub (alluvial fan)/annual herb/April–June/200– 760 meters	No suitable habitat; not observed during focused surveys.
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Santa Monica dudleya	FT/ None/ Covered	1B.2	Chaparral, coastal sage scrub, volcanic substrates/perennial herb/March–June/ 150–1675 meters	No suitable soil substrate. Not observed during focused surveys.
<i>Dudleya stolonifera</i>	Laguna Beach dudleya	FT/ ST/ Covered	1B.1	Chaparral, cismontane woodland, coastal sage scrub, Valley and foothill grassland, rocky areas/perennial herb/May–June/10–60 meters	Outside of known elevational range; not observed during focused surveys.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Santa Ana River woollystar	FE/ SE/ None	1B.1	Chaparral, coastal sage scrub (alluvial fan)/perennial herb/June– September/150–610 meters	No suitable habitat; not observed during focused surveys.
<i>Hesperocyparis forbesii</i>	Tecate cypress	None/ None/ Covered	1B.1	Closed-cone conifer forest, chaparral/tree/NA/ 255–1500 meters	No suitable habitat; not observed during focused surveys.

## Biological Technical Report for the Portola Center

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the**  
**Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
<i>Isocoma menziesii</i> var. <i>decumbens</i>	Decumbent goldenbush	None/ None/ None	1B.2	Coastal sage scrub (sandy, often disturbed areas)/shrub/April– November/10–135 meters	Outside of known elevational range; not observed during focused surveys.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	None/ None/ None	1B.1	Saltwater marsh and swamps, playas, vernal pools/annual herb/February–June/ 1–1220 meters	No suitable habitat; not observed during focused surveys.
<i>Lepechinia</i> <i>cardiophylla</i>	Heart-leaved pitcher sage	None/ None/ Covered	1B.2	Closed-cone conifer forest, chaparral, cismontane woodland/shrub/April– July/520–1370 meters	Outside of known elevational range; not observed during focused surveys.
<i>Monardella</i> <i>hypoleuca</i> ssp. <i>lanata</i>	Felt-leaved monardella	None/ None/ None	1B.2	Chaparral, cismontane woodland/perennial herb/May–July/300– 1190 meters	No suitable habitat; not observed during focused surveys.
<i>Monardella</i> <i>macrantha</i> ssp. <i>hallii</i>	Hall's monardella	None/ None/ None	1B.3	Broad-leaved upland forest, chaparral, cismontane woodland, lower montane conifer forest, Valley and foothill grassland/perennial herb/June–August/ 730–2195 meters	Outside of known elevational range; not observed during focused surveys.
<i>Nama</i> <i>stenocarpum</i>	mud nama	None/ None/ None	2.2	Marsh and swamps, lake margins and riverbanks/annual- perennial herb/January–July/5– 500 meters	No suitable habitat; not observed during focused surveys.
<i>Phacelia</i> <i>suaveolens</i> ssp. <i>keckii</i>	Santiago Peak phacelia	None/ None/ None	1B.3	Closed-cone conifer forest, chaparral/annual herb/May–June/610– 1600 meters	Outside of known elevational range; no suitable habitat;

## Biological Technical Report for the Portola Center

**Table 5B**  
**Special-Status Plant Species Evaluated but Determined to not Occur in the**  
**Portola Center Project Area**

Scientific Name	Common Name	Status Federal/State/ NCCP	CNPS List	Primary Habitat Associations/Life Form/Blooming Period/ Elevation	Status On site or Potential to Occur
					not observed during focused surveys.
<i>Verbesina dissita</i>	Big-leaved crownbeard	FT/ ST/ None	1B.1	Maritime chaparral, coastal sage scrub/perennial herb/April–July/45– 205 meters	Outside of known range; not observed during focused surveys.

Legend

FE: Federally listed as endangered  
FT: Federally listed as threatened  
SE: State-listed as endangered

No plant species listed or proposed for listing as rare, threatened or endangered by the CDFG or the USFWS were detected on site. Two plant species with a California Rare Plant Rank of 1B.2 (vulnerable under present circumstances or have a high potential for becoming so) are present on the site: intermediate mariposa lily and Robinson’s pepper-grass. In addition, two species of limited distribution, but not considered to be endangered (i.e., Rank 4) are present: Catalina mariposa lily (*Calochortus catalinae*) and paniculate tarplant.

Intermediate mariposa lily is a perennial herb in the lily family (*Liliaceae*) that may grow three feet tall and blooms with distinctive purplish flowers with yellowish hairs in June and July (Munz 1974). This lily occurs in Los Angeles, Riverside, and Orange Counties on hills below 2,300 feet. It grows on dry rocky slopes areas in grassland, chaparral, and coastal scrub habitats (Hickman 1996; CNPS 2011). A total of five intermediate mariposa lilies were observed during the surveys, located in two points near the southern perimeter of the property (Figure 3). Intermediate mariposa lily is an NCCP/HCP-covered species because its habitat requirements generally coincide with the California gnatcatcher and other target wildlife species.

Robinson’s pepper grass is an annual herb in the mustard family (*Brassicaceae*) with divided or lobed leaves along its stem that grows from 4–8 inches tall and flowers between January and April (Munz 1974). Robinson’s pepper grass occurs from Los Angeles County south to Baja California and on Santa Cruz Island. It grows in openings in coastal sage scrub and chaparral vegetation below 1,600 feet. Robinson’s peppergrass (*Lepidium virginicum* var. *robinsonii*) is shorter than two more widespread varieties of this species that grow in its range, *L.v.* var.

## Biological Technical Report for the Portola Center

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*virginicum* and *L.v. var. pubescens*, which grow in disturbed areas, such as old fields and roadsides (Hickman 1996). Eight Robinson's peppergrasses were identified during the surveys, located in three separate locations south of Glenn Ranch Road.

Catalina mariposa lily is a bulbiferous perennial in the lily family (*Liliaceae*) that can grow two feet tall and produces white flowers with lilac and purple spots from February to May (Munz 1974). Catalina mariposa lily grows below 2,000 feet in clay soils in open grasslands, openings in chaparral, coastal sage scrub, and cismontane woodland. The range of Catalina mariposa lily is considered to include three of the Channel Islands and extend in mainland California from San Luis Obispo County to San Diego County (Munz 1974; CNPS 2011). Catalina mariposa lily is a covered species under the NCCP/HCP because its habitat requirements generally coincide with the target wildlife species and it is more widely distributed than the target species. A total of 21 Catalina mariposa lilies (0.06 acre) were identified during the surveys in two separate locations in the northwestern part of the area south of Glenn Ranch Road

Paniculate tarplant is an annual herb in the sunflower family (*Asteraceae*) that grows up to 32 inches tall, with white or red branches and single yellow flowerheads (*inflorescences*) that usually blooms in April or May (Munz 1974; Hickman 1996). Paniculate tarplant is widespread on loamy soils within Riverside County, being especially common around Murrieta and Menifee. It occurs primarily in Riverside County, as well as in San Bernardino, Orange, and San Diego Counties and northern Baja California. It grows in vernal mesic grasslands and coastal sage scrub (CNPS 2011), typically in open vegetation on hard-packed soils. A 0.63 acre of open, somewhat disturbed soil north of Glenn Ranch Road was mapped as containing paniculate tarplant in 2005. The area was scraped to create a fire break during a 2007 wildfire and the population was remapped in June 2008. The 0.63 acre area of paniculate tarplant contained an estimated 350,000 plants, which included many small plants that may have been shaded out since then.

### 4.4.2 Special-Status Wildlife Species

A list of all special-status wildlife species known to occur in the vicinity of the Project Area (the surrounding nine topographic quadrangles) and wildlife species covered under the NCCP/HCP, with their habitat requirements, potential to occur on the site, and survey observations is provided in Table 6A–C: species detected on site (Table 6A), species potentially occurring on site but not directly observed (Table 6B), species not expected to occur on site (Table 6C).

## Biological Technical Report for the Portola Center

**Table 6A**  
**Special-Status Wildlife Species Detected on the Portola Center Project Site**

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Birds</i>				
<i>Accipiter cooperii</i> (nesting)	Cooper's hawk	None/WL/None	Riparian and oak woodlands, montane canyons	Observed during surveys.
<i>Ardea herodias</i> (rookery)	Great blue heron	None/None/None	Variety of habitats, but primarily wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats.	Observed during surveys. Rookery not present on site.
<i>Buteo lineatus</i>	Red-shouldered hawk	None/None/Covered	Nests in dense riparian areas, especially with adjacent edges, swamps, marshes, and wet meadows for hunting.	Observed during surveys.
<i>Elanus leucurus</i> (nesting)	White-tailed kite	None/FP/Covered	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	Observed during surveys.
<i>Eremophila alpestris actia</i>	California horned lark	None/WL/Covered	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	Observed during surveys.
<i>Lanius ludovicianus</i> (nesting)	Loggerhead shrike	BCC/SSC/Covered	Open ground including grassland, coastal sage scrub, broken chaparral, agriculture, riparian, open woodland	Observed during surveys.
<i>Poliophtila californica californica</i>	Coastal California gnatcatcher	FT, BCC, WLBCC/SSC/ Covered	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	Six pair identified during focused surveys.



## Biological Technical Report for the Portola Center

**Table 6A**  
**Special-Status Wildlife Species Detected on the Portola Center Project Site**

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Mammals</i>				
<i>Canis latrans</i>	Coyote	None/ None/ Covered	Almost all habitats and successional stages; frequents open brush, scrub, shrub, and herbaceous habitats; also younger deciduous and conifer forest and woodland.	Observed during surveys.

<sup>1</sup> This table includes all NCCP-covered species and species reported in the 9 topographic quadrangles surrounding the Project Area (El Toro, Black Star Canyon, Corona South, Tustin, Laguna Beach, Orange, Santiago Peak, San Juan Capistrano, Canada Gobernadora).

**Federal Designations:**

BCC United States Fish and Wildlife Service Birds of Conservation Concern  
 (FD) Federally delisted; monitored for five years  
 FE Federally listed Endangered  
 FT Federally listed as Threatened  
 WLBC United States Watch List of Birds of Conservation Concern

**State Designations:**

FP California Department of Fish and Game Protected and Fully Protected Species  
 SE State-listed as Endangered  
 ST State-listed as Threatened  
 SSC California Department of Fish and Game Species of Special Concern  
 WL California Department of Fish and Game Watch List Species

**NCCP Designations:**

Covered – Covered species under central / Coastal Subarea Plan

**Table 6B**  
**Special-Status Wildlife Species Potentially Occurring on the  
Portola Center Project Site but Not Directly Observed**

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Amphibians</i>				
<i>Ensatina klauberi</i>	Large-blotched salamander	None/ SSC/ None	Oak woodland, chaparral, coastal sage scrub, coastal dunes, conifer forest	Suitable habitat present, moderate potential to occur.
<i>Spea [=Scaphiopus] hammondi</i>	Western spadefoot	None/ SSC/ Covered	Most common in grasslands, coastal sage scrub near rain pools or vernal pools; riparian habitat	Suitable habitat present, moderate potential to occur.

## Biological Technical Report for the Portola Center

**Table 6B**  
**Special-Status Wildlife Species Potentially Occurring on the**  
**Portola Center Project Site but Not Directly Observed**

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Reptiles</i>				
<i>Aspidoscelis hyperythra</i> [= <i>Cnemidophorus hyperythrus</i> ]	Orange-throated whiptail	None/ SSC/ Covered	Coastal sage scrub, chaparral, grassland, juniper and oak woodland	Suitable habitat present; reported in area; moderate potential to occur.
<i>Aspidoscelis tigris stejnegeri</i> [= <i>Cnemidophorus tigris multiscutatus</i> ]	Coastal western whiptail	None/ None/ Covered	Coastal sage scrub, chaparral	Suitable habitat present; moderate potential to occur.
<i>Diadophis punctatus similis</i>	San Diego ringneck snake	None/ None/ None	Open, rocky areas in moist habitats near intermittent streams: marsh, riparian woodland, sage scrub	Suitable habitat present; moderate potential to occur.
<i>Phrynosoma coronatum</i> (blainvillei population)	Coast (San Diego) horned lizard	None/ SSC/ Covered	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest	Suitable habitat present; moderate potential to occur.
<i>Birds</i>				
<i>Falco mexicanus</i> (nesting)	Prairie falcon	BCC/ WL/ Covered	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Moderate potential to occur. .
<i>Mammals</i>				
<i>Chaetodipus californicus femoralis</i>	Dulzura (California) pocket mouse	None/ SSC/ None	Coastal sage scrub, chaparral, riparian-scrub ecotone; more mesic areas	Suitable habitat present; moderate potential to occur.
<i>Chaetodipus fallax fallax</i>	Northwestern San Diego pocket mouse	None/ SSC/ None	Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse chaparral; rocky substrates, loams and sandy loams	Suitable habitat present; moderate potential to occur.
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	None/SSC/ Covered	Coastal sage scrub, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	Suitable habitat present; moderate potential to occur; woodrat sp. middens on site.

## Biological Technical Report for the Portola Center

**Table 6B**  
**Special-Status Wildlife Species Potentially Occurring on the**  
**Portola Center Project Site but Not Directly Observed**

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Onychomys torridus ramona</i>	Southern grasshopper mouse	None/ SSC/ None	Grassland, sparse coastal sage scrub	Suitable habitat present; moderate potential to occur.
<i>Urocyon cinereoargenteus</i>	Gray fox	None/ None/ Covered	Shrublands, brushy and open-canopied forests, interspersed with riparian areas. Dens in cavities, in rocky areas, snags, logs, brush, slash piles, old burrows, and under buildings.	Suitable habitat present; high potential to occur.
<i>Antrozous pallidus</i>	Pallid bat	None/ SSC/ None	Rocky outcrops, cliffs, and crevices with access to open habitats for foraging	No roosting habitat on site; moderate potential to forage in vicinity.
<i>Choeronycteris mexicana</i>	Mexican long-tongued bat	None/ SSC/ None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings.	No roosting habitat on site; moderate potential to forage in vicinity.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/ SSC/ None	Mesic habitats, gleans from brush or trees or feeds along habitat edges	No roosting habitat on site; moderate potential to forage in vicinity.
<i>Eumops perotis californicus</i>	Western mastiff bat	None/ SSC/ None	Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures	No roosting habitat on site; moderate potential to forage in vicinity.
<i>Nyctinomops femorosaccus</i>	Pocketed free-tailed bat	None/ SSC/ None	Rocky desert areas with high cliffs or rock outcrops	No roosting habitat on site; moderate potential to forage in vicinity.
<i>Nyctinomops macrotis</i>	Big free-tailed bat	None/ SSC/ None	Rugged, rocky canyons	No roosting habitat on site; moderate potential to forage in vicinity.

<sup>1</sup> This table includes all NCCP-covered species and species reported in the 9 topographic quadrangles surrounding the Project Area (El Toro, Black Star Canyon, Corona South, Tustin, Laguna Beach, Orange, Santiago Peak, San Juan Capistrano, Canada Gobernadora).

## Biological Technical Report for the Portola Center

### Federal Designations:

BCC United States Fish and Wildlife Service Birds of Conservation Concern  
(FD) Federally delisted; monitored for five years  
FE Federally listed Endangered  
FT Federally listed as Threatened  
WLBC United States Watch List of Birds of Conservation Concern

### State Designations:

FP California Department of Fish and Game Protected and Fully Protected Species  
SE State-listed as Endangered  
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Covered – Covered species under central / Coastal Subarea Plan

**Table 6C**

### Special-Status Wildlife Species Not Expected to Occur on the Portola Center Project Site

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Amphibians</i>				
<i>Aneides lugubris</i>	Arboreal Salamander	None/ None/ Covered	Chaparral in southern California; valley-foothill hardwood, valley-foothill hardwood-conifer, mixed conifer habitats, Douglas fir and redwood elsewhere.	No suitable habitat present; no potential to occur.
<i>Batrachoseps nigriventris</i>	Black-bellied slender salamander	None/ None/ Covered	Swales and drainages in open oak, mixed conifer forests, and mixed chaparral with abundant rocks, litter, or woody debris.	No suitable habitat present; no potential to occur.
<i>Bufo californicus</i> [= <i>microscaphus californicus</i> ]	Arroyo toad	FE/ SSC/ Covered	Stream channels for breeding (typically 3 <sup>rd</sup> order); adjacent stream terraces and uplands for foraging and wintering	No suitable habitat present; no potential to occur.
<i>Rana aurora draytonii</i>	California red-legged frog	FT/ SSC/ None	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	No suitable habitat present; no potential to occur.

## Biological Technical Report for the Portola Center

**Table 6C**

### Special-Status Wildlife Species Not Expected to Occur on the Portola Center Project Site

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Rana muscosa</i>	Mountain yellow-legged frog	FE / SSC/ None	Meadow streams, isolated pools, lake borders, rocky stream courses within ponderosa pine, montane hardwood-conifer and montane riparian habitat types	No suitable habitat present; no potential to occur.
<i>Taricha torosa torosa</i>	Coast Range newt	None/ SSC/ None	Coastal drainages; lives in terrestrial habitats and will migrate over 1 km to ponds, reservoirs, and slow-moving streams	Limited suitable habitat present, no ponds on site; low potential to occur.
<i>Reptiles</i>				
<i>Anniella pulchra pulchra</i>	Silvery legless lizard	None/ SSC/ None	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats	Suitable habitat present; low potential to occur.
<i>Actinemys [=Emys] marmorata pallida</i>	Southwestern pond turtle	None/SSC/ None	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter	No suitable habitat present; no potential to occur.
<i>Crotalus ruber ruber</i>	Northern red-diamond rattlesnake	None/ SSC/ Covered	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	Suitable habitat present; due to urban setting, low potential to occur.
<i>Eumeces skiltonianus interparietalis</i>	Coronado skink	None/ SSC/ Covered	Grassland, riparian and oak woodland; found in litter, rotting logs, under flat stones	Limited suitable habitat present; low potential to occur.
<i>Lampropeltis zonata (pulchra)</i>	San Diego mountain kingsnake (San Diego population)	None/SSC/ None	Valley-foothill hardwood, hardwood-conifer, chaparral, coniferous forest, wet meadow	Suitable habitat present; very low potential to occur due to range and urban setting.
<i>Lichanura trivirgata</i>	Rosy boa	None/ None/ Covered	Rocky chaparral, coastal sage scrub, oak woodlands, desert and semi-desert scrub	Suitable habitat present; due to urban setting, low potential to occur.

## Biological Technical Report for the Portola Center

**Table 6C**

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Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Salvadora hexalepis virgulata</i>	Coast patch-nosed snake	None/ SSC/ None	Chaparral, washes, sandy flats, rocky areas	Suitable habitat present; low potential to occur on site, but may occur off site down slope.
<i>Thamnophis hammondi</i>	Two-striped garter snake	None/ SSC/ None	Marshes, meadows, sloughs, ponds, slow-moving water courses	Very low potential to occur due to lack of pools or creek on site; may be present in in and around Aliso Creek, but unlikely that it would travel up steep slope to site.
<i>Thamnophis sirtalis</i> ssp.	South Coast garter snake	None/ SSC/ None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Very low potential to occur due to lack of pools or creek on site; may be present in in and around Aliso Creek, but unlikely that it would travel upslope to site.
<i>Birds</i>				
<i>Aimophila ruficeps canescens</i>	Southern California rufous-crowned sparrow	None/ WL/ Covered	Grass-covered hillsides, coastal sage scrub, chaparral with boulders and outcrops	Suitable habitat present; low potential to occur; would have been observed if present.
<i>Amphispiza belli belli</i> (nesting)	Bell's sage sparrow	BCC/ WL/ None	Coastal sage scrub and dry chaparral along coastal lowlands and inland valleys	Suitable habitat present; low potential to occur.
<i>Athene cunicularia</i> (burrow sites)	Burrowing owl	BCC/ SSC/ None	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas	Suitable habitat present, but no suitable burrows observed during surveys; low potential to occur.
<i>Accipiter striatus</i> (nesting)	Sharp-shinned hawk	None/WL/ Covered	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats	No breeding habitat on site; not known to breed on coastal slope in southern California.
<i>Agelaius tricolor</i>	Tricolored blackbird	BCC, WL BCC/ SSC/ None	Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture	No suitable habitat on site; no potential to occur.

## Biological Technical Report for the Portola Center

**Table 6C**

### Special-Status Wildlife Species Not Expected to Occur on the Portola Center Project Site

Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Aquila chrysaetos</i> (nesting and nonbreeding/wintering)	Golden eagle	BCC/ WL, FP/ Covered	Open country, especially hilly and mountainous regions; grassland, coastal sage scrub, chaparral, oak savannas, open coniferous forest	Very unlikely to occur due to urbanized setting and lack of suitable foraging and breeding habitat.
<i>Asio flammeus</i>	Short-eared owl	WL BCC/ SSC/ None	Grassland, prairies, dunes, meadows, irrigated lands, saline and freshwater emergent wetlands	Limited suitable habitat on site; low potential to occur.
<i>Buteo lagopus</i>	Rough-legged hawk	None/ None/ Covered	Does not breed in California. Occurs regularly at southern California lakes. Frequents open areas near riparian or other wooded habitats.	No suitable habitat present; no potential to occur.
<i>Buteo regalis</i> (nonbreeding/wintering)	Ferruginous hawk	BCC/ WL/ None	Open, dry country, grasslands, open fields, agriculture	Low potential to occur as a migrant.
<i>Buteo swainsoni</i> (nesting)	Swainson's hawk	BCC, WL BCC/ ST/ None	Open grassland, shrublands, croplands	Low potential to occur as a migrant.
<i>Campylorhynchus brunneicapillus sandiegensis</i>	<i>San Diego cactus wren</i>	BCC/ SSC/ Covered	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	No suitable habitat; would have been detected if present.
<i>Charadrius alexandrinus nivosus</i> (nesting)	Western snowy plover (coastal population)	FT, BCC, WL BCC/ SSC/ None	Nests primarily on coastal beaches, in flat open areas, with sandy or saline substrates; less commonly in salt pans, dredged spoil disposal sites, dry salt ponds and levees	No suitable habitat present; no potential to occur.
<i>Charadrius montanus</i> (nonbreeding/wintering)	Mountain plover	BCC, WL BCC/ SSC/ None	Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts	Very low potential to occur as a winter migrant; outside of known breeding range; no suitable breeding habitat on site.
<i>Chlidonias niger</i> (nesting colony)	Black tern	None/ SSC/ None	Freshwater lakes, marshes, ponds, coastal lagoons	No breeding or foraging habitat on site; not expected to occur.



## Biological Technical Report for the Portola Center

**Table 6C**  
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Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Circus cyaneus</i> (nesting)	Northern harrier	None/ SSC/ Covered	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub	Moderate potential to forage over the site; no breeding habitat on site.
<i>Coccyzus americanus</i> <i>occidentalis</i> (nesting)	Western yellow- billed cuckoo	FC, BCC/ SE/ None	Dense, wide riparian woodlands and forest with well-developed understories	No suitable habitat present on site; no potential to occur.
<i>Cypseloides niger</i> (nesting)	Black swift	BCC, WLBCC/ SSC/ None	Nests in moist crevices or caves on sea cliffs or near waterfalls in deep canyons; forages over many habitats	No breeding habitat present on site; low potential to forage over the site.
<i>Dendroica petechia</i> <i>brewsteri</i> (nesting)	Yellow warbler	None/ SSC/ None	Nests in lowland and foothill riparian woodlands dominated by cottonwoods, alders and willows; winters in a variety of habitats	Limited suitable habitat on site; high potential to occur in vicinity in association with Aliso Creek.
<i>Empidonax traillii</i> <i>extimus</i> (nesting)	Southwestern willow flycatcher	FE, WLBCC/ SE/ Covered	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	No suitable habitat on site; no potential to occur.
<i>Falco columbarius</i> (nonbreeding/wintering)	Merlin	None/ WL/ None	Nests in open country, open coniferous forest, prairie; winters in open woodlands, grasslands, cultivated fields, marshes, estuaries and sea coasts	Low potential to occur as a winter migrant.
<i>Falco peregrinus</i> <i>anatum</i> (nesting)	American peregrine falcon	BCC, (FD)/ SE, FPI/ Covered	Nests on cliffs, buildings, bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	No suitable nesting habitat on site; not expected to occur.
<i>Icteria virens</i> (nesting)	Yellow-breasted chat	None/ SSC/ None	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	No suitable habitat on site; no potential to occur.

## Biological Technical Report for the Portola Center

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Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Ixobrychus exilis</i> (nesting)	Least bittern	None/ SSC/ None	Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water	No suitable habitat on site; no potential to occur.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	ST, BCC, WLBC/ ST, FP/ None	Saline, brackish, and fresh emergent wetlands	No suitable habitat on site; no potential to occur.
<i>Numenius americanus</i> (nesting)	Long-billed curlew	BCC, WLBC/ WL/ None	Nests in upland shortgrass prairies and wet meadows in northeast California; winters in coastal estuaries, open grasslands and croplands	No suitable habitat on site; no potential to occur.
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	None/ SE/ None	Saltmarsh, pickleweed	No suitable habitat on site; no potential to occur.
<i>Passerculus sandwichensis rostratus</i> (nonbreeding/wintering)	Large-billed savannah sparrow	None/SSC/ None	Saltmarsh, pickleweed	No suitable habitat on site; no potential to occur.
<i>Piranga flava</i> (nesting)	Hepatic tanager	BCC/ SSC/ None	Coniferous forests mixed with oak, pinyon-juniper woodland	No suitable habitat on site; no potential to occur.
<i>Piranga rubra</i> (nesting)	Summer tanager	None/ SSC/ None	Nests in riparian woodland; winter habitats include parks and residential areas	No potential to nest on site.
<i>Progne subis</i> (nesting)	Purple martin	None/ SSC/ None	Nests in tall sycamores, pines, oak woodlands, coniferous forest; forages over riparian, forest and woodland	Limited suitable habitat on site; low potential to occur.
<i>Riparia riparia</i> (nesting)	Bank swallow	None/ ST/ None	Nests in lowland country with soft banks or bluffs; open country and water during migration	Outside of known range; low potential to occur as a migrant.
<i>Vireo bellii pusillus</i> (nesting)	Least Bell's vireo	FE, BCC, WLBC/ SE/ Covered	Nests in southern willow scrub with dense cover within 1-2 meters of the ground; habitat includes willows, cottonwoods, baccharis, wild blackberry or mesquite on desert areas	No suitable habitat present on site. Not expected to occur on site.

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Scientific Name	Common Name	Status Federal/ State/ NCCP <sup>1</sup>	Primary Habitat Associations	Status On-site or Potential To Occur
<i>Mammals</i>				
<i>Euderma maculatum</i>	Spotted bat	None/ SSC/ None	Rock crevices, riparian forest, woodland, and scrub, ponds, lakes, grasslands	No roosting habitat on site; low potential to forage in vicinity; very rare species.
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	None/ SSC/ None	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed areas, rangelands	Not expected to occur; would have been observed if present.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	None/ SSC/ None	Grassland, coastal sage scrub, disturbed habitats; fine, sandy soils	Outside of known range; not expected to occur.
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse	FE/ SSC/ Covered	Grassland, coastal sage scrub with sandy soils; along immediate coast	Outside of known population range; not expected to occur.
<i>Taxidea taxus</i>	American badger	None/ SSC/ None	Dry, open treeless areas, grasslands, coastal sage scrub	Not expected to occur; believed to be extirpated from highly urbanized areas in southern California.
<i>Invertebrates</i>				
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT/ None/ None	Vernal pools; cool-water pools with low to moderate dissolved solids	No suitable habitat on site; no potential to occur.
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	FE/ None/ Covered	Small, shallow vernal pools, occasionally ditches and road ruts	No suitable habitat on site; no potential to occur.
<i>Danaus plexippus</i> (wintering sites)	Monarch butterfly	None/ None/ None	Overwinters in eucalyptus groves	No suitable roosting habitat present. No potential to use site as a roosting area.
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	FE/ None/ Covered	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids	No suitable habitat on site; no potential to occur.

## Biological Technical Report for the Portola Center

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<i>Fish</i>				
<i>Catostomus santaanae</i>	Santa Ana sucker	FT/ SSC/ None	Small, shallow, cool, clear streams less than 7 meters in width and a few centimeters to more than a meter in depth; substrates are generally coarse gravel, rubble and boulder	No suitable habitat present on site. Not expected to occur.
<i>Eucyclogobius newberryi</i>	Tidewater goby	FE/ SSC/ None	Low-salinity waters in coastal wetlands	No suitable habitat present on site. Not expected to occur.
<i>Gasterosteus aculeatus santaannae</i>	Santa Ana threespine stickleback	None/ None/ None	Low-salinity waters in coastal wetlands	No suitable habitat present on site. Not expected to occur.
<i>Gila orcutti</i>	Arroyo chub	None/ SSC/ None	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths > 40 centimeters; substrates of sand or mud	No suitable habitat present on site. Not expected to occur.
<i>Rhinichthys osculus</i> ssp. 3	Santa Ana speckled dace	None/ SSC/ None	Permanent streams with cool, flowing rocky-bottomed washes, shallow cobble and gravel riffles	No suitable habitat present on site. Not expected to occur.

<sup>1</sup> This table includes all NCCP-covered species and species reported in the 9 topographic quadrangles surrounding the Project Area (El Toro, Black Star Canyon, Corona South, Tustin, Laguna Beach, Orange, Santiago Peak, San Juan Capistrano, Canada Gobernadora).

**Federal Designations:**

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## Biological Technical Report for the Portola Center

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Six pairs of the federally listed threatened, California Species of Special Concern (SSC), and Central/Coastal NCCP/HCP-covered California gnatcatcher were observed on site during the focused surveys. California gnatcatcher pair locations are presented in Figure 3. During these surveys California Fully Protected and NCCP/HCP-covered white-tailed kite, SSC Cooper's hawk and SSC and NCCP/HCP-covered loggerhead shrike, NCCP/HCP-covered red-shouldered hawk, and CNDDDB special animal great blue heron (*Ardea herodias*) were also observed. In all cases, these birds were observed flying or foraging over the site. The nesting status of these bird species could not be determined due to the timing of the wildlife surveys which were outside of the breeding season. There is a moderate potential for each of these bird species, with the exception of great blue heron, to nest on site, as well as SSC and NCCP/HCP-covered prairie falcon (*Falco mexicanus*).

There is a moderate potential for:

- two special-status amphibians: SSC large-blotched salamander (*Ensatina klauberi*) and SSC and NCCP/HCP-covered western spadefoot (*Spea hammondi*);
- four special-status reptiles: SSC and NCCP/HCP-covered orange-throated whiptail (*Aspidoscelis hyperythra*), NCCP-covered coastal western whiptail (*Aspidoscelis tigris stejnegeri*), CNDDDB special animal San Diego ringneck snake (*Diadophis punctatus similis*) and SSC and NCCP/HCP-covered coast horned lizard (*Phrynosoma coronatum*); and
- six special-status mammals: SSC Dulzura pocket mouse (*Chaetodipus californicus femoralis*), SSC northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), SSC and NCCP/HCP-covered San Diego desert woodrat (*Neotoma lepida intermedia*), and SSC southern grasshopper mouse (*Onychomys torridus ramona*), and NCCP/HCP-covered coyote and NCCP/HCP-covered gray fox (*Urocyon cinereoargenteus*) to occur on site.

There is a moderate potential for five SSC bat species, Mexican long-tongued bat (*Choeronycteris mexicana*), Townsend's big-eared bat (*Corynorhinus townsendii*), Western mastiff bat (*Eumops perotis californicus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), and big free-tailed bat (*Nyctinomops macrotis*), to forage in the vicinity; no roosting habitat occurs on site.

### 4.4.3 Special-Status Vegetation Communities

Special-status vegetation communities are those that are considered to be unique or support sensitive plant and/or wildlife species. For the purposes of this report, vegetation types listed in the NCCP/HCP as providing habitat for covered species OR vegetation communities listed by CDFG (2010) as an alliance or association with State Rank 1-3 AND on-site occurrences that constitute high-quality occurrences of the given community.

## **Biological Technical Report for the Portola Center**

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Three general vegetation types recognized by the NCCP/HCP are present on site: annual grassland, coastal sage scrub, and riparian. Subtypes of these general vegetation types present on site and considered special-status are: black sage scrub (including disturbed), disturbed California buckwheat scrub, California sagebrush–California buckwheat scrub (including disturbed and revegetated), California sagebrush–orange monkeyflower scrub, coyote brush scrub (including disturbed), goldenbush scrub, lemonadeberry scrub, sagebrush–black sage scrub, sagebrush scrub (including disturbed), and southern cactus scrub (including disturbed); and mulefat scrub and southern willow scrub.

### **4.4.4 Wildlife Corridors and Habitat Linkages**

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, and by providing access to adjacent habitat, and routes for recolonization after local extirpation or ecological catastrophes (e.g., fires).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as stepping stones for dispersal.

The Project Area is located between extensive open space in the Whiting Ranch Wilderness Park to the north, Cleveland National Forest to the east, and O'Neill Regional Park to the south. This entire area serves as a major regional wildlife movement corridor.

## **4.5 Regional Resource Planning Context – NCCP Program**

The NCCP program was established by the California Legislature when it enacted the NCCP Act of 1991 (California Fish and Game Code, Section 2800 et seq.). The purpose of the NCCP program is to provide long-term, regional protection of natural vegetation and wildlife diversity while allowing compatible land uses and appropriate development and growth. The NCCP program was designed to be a voluntary, collaborative planning program involving landowners, local governments, state and federal agencies, environmental organizations and interested members of the public. The Southern California Coastal Sage Scrub NCCP program is the pilot program under the State's NCCP Act. The designated five-County regional planning area that comprises the Southern California NCCP study area covers 6,000 square miles and includes Orange County and portions of San Diego, Riverside, San Bernardino and Los Angeles counties. Orange County is further broken into the Coastal/Central Subregion NCCP and Southern Subregion NCCP. The Coastal/Central Subregion NCCP/HCP was approved in 1995, establishing a 37,380 acre reserve system. The City of Lake Forest (City) was a signatory to the Plan and agrees to abide by the

## Biological Technical Report for the Portola Center

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restrictions of the NCCP/HCP plan (County, USFWS, and CDFG 1995). The Southern Subregion HCP was completed in 2007; however, the NCCP portion is on hold.

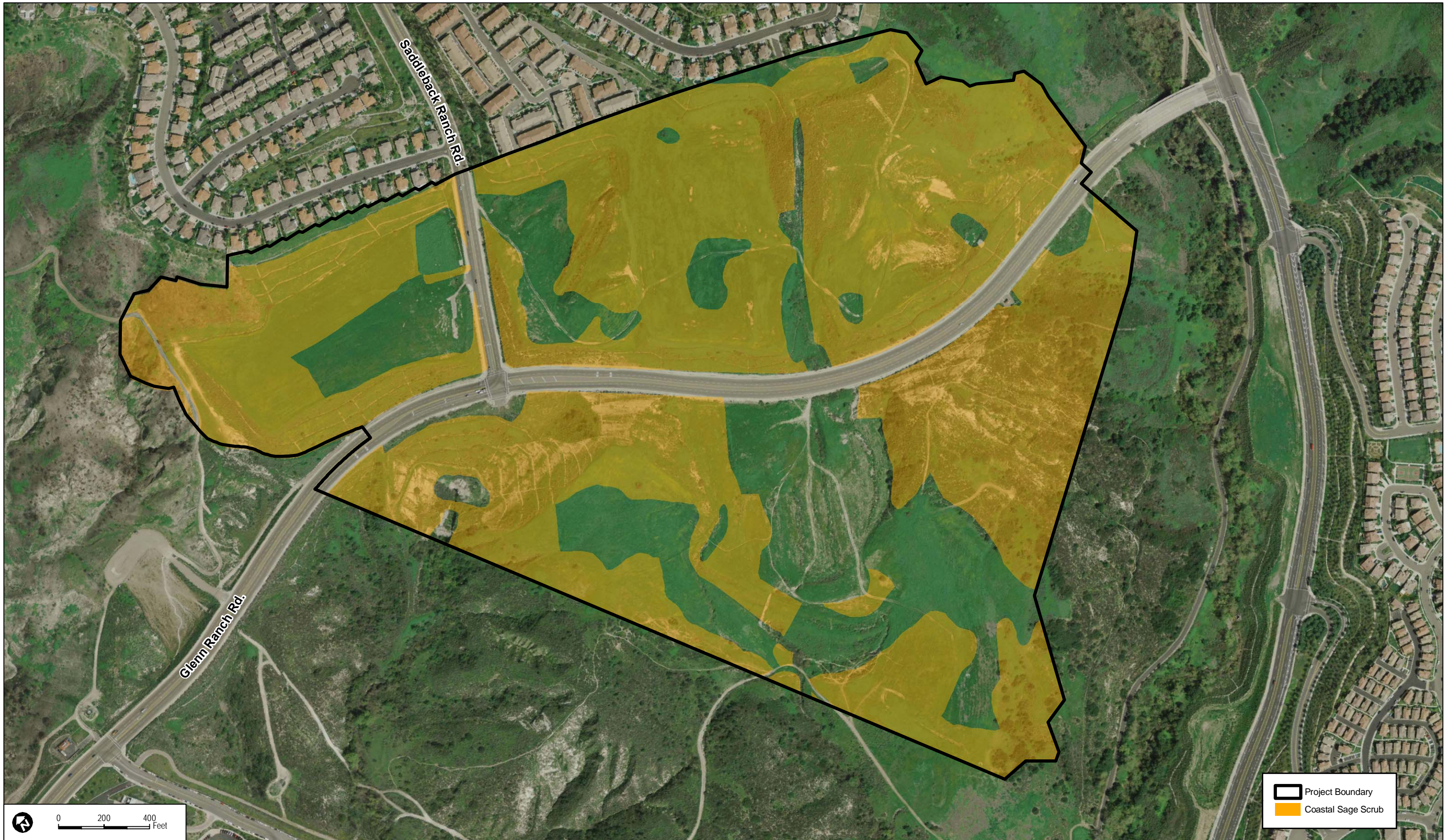
Twelve major vegetation types are preserved by the NCCP/HCP plan, in return for authorization of incidental “take” (i.e., harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) of 39 species of sensitive plants and wildlife within the remaining portions of the 208,000 acre planning area. The Plan also designates non-reserve Special Linkages and Existing Use Areas, which benefit the species covered by the NCCP/HCP plan, but are not subject to reserve adaptive management policies and use restrictions (County, USFWS, and CDFG 1995).

Local jurisdictions contribute to the management of the reserve system by adopting general plan, zoning, fuel modification, and other ordinances consistent with the NCCP/HCP plan, reviewing project proposals in cooperation with the reserve owner/manager to assure consistency with the NCCP/HCP plan, verifying that mitigation fees are collected, recording coastal sage scrub losses and mitigation, and ensuring that minimization and mitigation measures are enforced (County, USFWS, and CDFG 1995).

The applicants are non-participating landowner, not having contributed either significant land to the reserve system or funding for the adaptive management program. Non-participating landowners may satisfy the federal and state Endangered Species Act requirements by (1) avoiding on-site take, (2) obtaining federal and state permits through consultation with the USFWS under Section 7 or 10 of the FESA and with CDFG under Section 2081 of the California Fish and Game Code, or (3) payment of a Mitigation Fee to the Nature Reserve of Orange County (County, USFWS, and CDFG 1995). The mitigation fee is currently \$65,000 per acre of coastal sage scrub vegetation impacted (McAfee, pers. comm. 2010).

Due to a mapping error, portions of the Project Area were included as part of the Central/Coastal NCCP/HCP Reserve and Existing Use Area. In June 2009, the Nature Reserve of Orange County (NROC), administers of the Central/Coastal NCCP/HCP, approved a Map Correction to remove 28.3 acres from the Reserve (City of Lake Forest 2010). In March 2010, the City of Lake Forest approved a Minor Amendment to the Central/Coastal NCCP/HCP allowing 12.07 acres of the Project Area designated as Existing Use to be authorized for take of covered species and habitat and establishing necessary mitigation in conformance with the Central/Coastal NCCP/HCP. This mitigation was based on loss of coastal sage scrub (including southern cactus scrub) using 1997 vegetation mapping developed by Natural Resources Consultants (NRC) (Figure 4). The 1997 vegetation mapping is because the loss in coastal sage scrub since that time has not been accounted for or permitted. Conservation measures developed in the Minor Amendment included dedication of 32.4 acres of land, formerly part of the Portola Center Project Area, but now included as part of the Reserve, as well as provisions for payment of in-lieu mitigation fee and revegetation of southern cactus scrub both within the adjacent Reserve and within the on-site brush management zone (Figure 5).







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## Biological Technical Report for the Portola Center

### 4.6 Opportunities Study Environmental Impact Report Findings

Portola Center is located on one of seven vacant properties proposed for development in the City of Lake Forest. Development of all seven of these parcels, totaling 838 acres, was analyzed for potential environmental impacts on a large scale in the Opportunities Study Environmental Impact Report (EIR), dated in 2006. The Opportunities Study Area is the area formerly encumbered by the 65 Community Noise Equivalent Level (CNEL) contour located north and south of SR-241 and adjacent to the former Marine Corps Air Station (MCAS) El Toro. Anticipated development on these seven properties include residential, business parks, commercial use, professional office, and open space. In the EIR, impacts from development of the Project site were analyzed in conjunction with development of the other six parcels.

The Opportunities Study EIR highlights environmental issues identified as potentially significant by the Notice of Preparation (NOP), responses to the NOP, and scoping discussions among the public, consulting staff, and the City of Lake Forest. Impacts to biological resources are discussed in detail (Table 7). In addition to identifying these impacts, the EIR recommends feasible mitigation measures that would reduce or eliminate adverse environmental effects of the Project. The Lake Forest City Council certified the Opportunities Study EIR on June 3, 2008.

**Table 7**  
**Potentially Significant Biological Impacts and**  
**Proposed Mitigation Measures in the Opportunities Study EIR**

Impacts	Mitigation Measures
Impacts to sensitive species	<ul style="list-style-type: none"><li>• Perform biological field surveys to determine the extent of impact to habitat. If species are found covered by the NCCP/HCP, they must be mitigated according to the NCCP/HCP.</li><li>• Pay appropriate fees for loss of coastal sage scrub (CSS) habitat</li><li>• Crews are not permitted to grade CSS occupied by nesting gnatcatchers during the breeding season</li><li>• Must use temporary fencing to delineate the CSS habitat to be avoided by Project Activities</li><li>• Must have biologist on-site during all CSS clearing</li><li>• Access roads shall not be through CSS</li><li>• Must spray CSS with water to prevent dust buildup</li><li>• Establish mitigation plan to accommodate loss of species/habitats not covered by the NCCP/HCP</li></ul>
Impacts to sensitive habitat (including riparian habitat)	<ul style="list-style-type: none"><li>• Conduct a wetland delineation</li><li>• Submit appropriate permits for impacts to waters</li><li>• Develop restoration plan</li></ul>
Impacts to federally protected wetlands	<ul style="list-style-type: none"><li>• Develop restoration plan</li></ul>
Fragmentation of habitat and wildlife movement corridors	<ul style="list-style-type: none"><li>• Create greenbelts and wildlife movement corridors through the proposed development</li><li>• Plant native vegetation</li></ul>
Conflict with local policies that protect biological resources	The aforementioned mitigation measures would apply to this impact

## Biological Technical Report for the Portola Center

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### 5.0 ANTICIPATED PROJECT IMPACTS

This section addresses direct, indirect, and cumulative impacts to biological resources that may result from implementation of the proposed project.

Impacts were determined and quantified by digitally overlaying the limits of development and brush management zones, as provided by the Project Engineer (Hunsaker and Associates, March 2011) on the biological resources map. The development includes four subareas:

- Development Northeast (NE) is located northeast of the intersection of Glenn Ranch Road and Saddleback Ranch Road,
- Development Northwest (NW) is located to the northwest,
- Development South is located to the south and
- Roads which consist of improvements with Glenn Ranch Road.

In addition, portions of the brush management zones, utility easements, and trails occur within three open space areas adjacent to the development:

- Open Space Northwest (NW) is a parcel north of Glenn Ranch Road and west of the development that was previously dedicated to the Central/Coastal NCCP/HCP Reserve;
- Open Space Northeast (NE) is a group of two parcels both north and south of Glenn Ranch Road and east of the development that was also previously dedicated to the Central/Coastal NCCP/HCP Reserve; and
- Open Space Southeast (SE) a parcel that will be dedicated open space through recordation of the Final Map for the development.

**Direct impacts** consist of the loss of habitat and the plant and wildlife species that it contains within the area impacted by the proposed project. Direct impacts may be permanent or temporary.

All biological resources within the limits of grading impact area and any additional brush management zones are considered 100% permanent lost. However, a portion of the brush management zones (BMZ) occur on graded/manufactured slopes and a portion occurs within ungraded areas. For jurisdictional resources, the ACOE only regulates grading (i.e., discharge of fill and dredged materials), such that brush management zones within ungraded areas are not included within the ACOE impacts. Similarly, ungraded portions of the brush management zones are not expected to affect unvegetated stream channels, due to the lack of any modifications to topography or hydrology, and, therefore, impacts are provided for the graded areas only.

## Biological Technical Report for the Portola Center

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Likewise, brush management activities may not preclude certain special-status plant species from persisting (see discussion in Section 5.1.3).

Temporary impacts constitute a small portion of the development area but includes graded slopes which extend beyond the required brush management zone and a 25-foot temporary construction easement for potential construction-related impacts.

**Indirect Impacts** are difficult to quantify but may be as significant as direct impacts. They primarily result from adverse “edge effects,” either short-term indirect impacts related to construction or long-term, chronic indirect impacts associated with the location of development in proximity to biological resources within natural open space.

Short-term indirect impacts that could potentially result from project construction include dust, which could affect plant growth and insect activity; noise, which could disrupt wildlife communication, including bird breeding behavior; lighting, which could disrupt behavior of nocturnal reptiles, mammals, and raptors; sedimentation, siltation, and erosion, which could affect water quality of on-site streams; and pollutant run-off, including chemicals used during construction and machinery maintenance, which could contaminate soil and water.

Long-term indirect project impacts that could potentially result from the new housing include introduction of mesopredators; residential runoff; introduction of invasive exotic plants into natural vegetation; noise and lighting impacts to wildlife; or changes in ecosystem dynamics such as stream flow or fire cycles.

**Cumulative Impacts** refer to incremental individual environmental effects of the proposed project and other past, present, and reasonably foreseeable future projects when combined together. These impacts taken individually may be minor, but collectively may be significant as they occur over a period of time.

### 5.1 Direct Impacts

#### 5.1.1 Vegetation Communities

Direct permanent impacts include all areas within the limits of grading and brush management zone, as shown in Figure 6. Implementation of the proposed project would result in the direct permanent loss of the entire Project Area and portions of adjacent Open Space areas. Permanent impacts within Open Space areas are mostly limited to brush management, which is allowed within the NCCP/HCP Reserve; a small portion of the impacts are related to trails in the Open Space –NW parcel and a utility easement in the Open Space – South parcel. Temporary impacts may also occur within the Open Space – NW and Open Space – South parcels as a result of a 25-



## **Biological Technical Report for the Portola Center**

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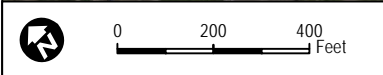
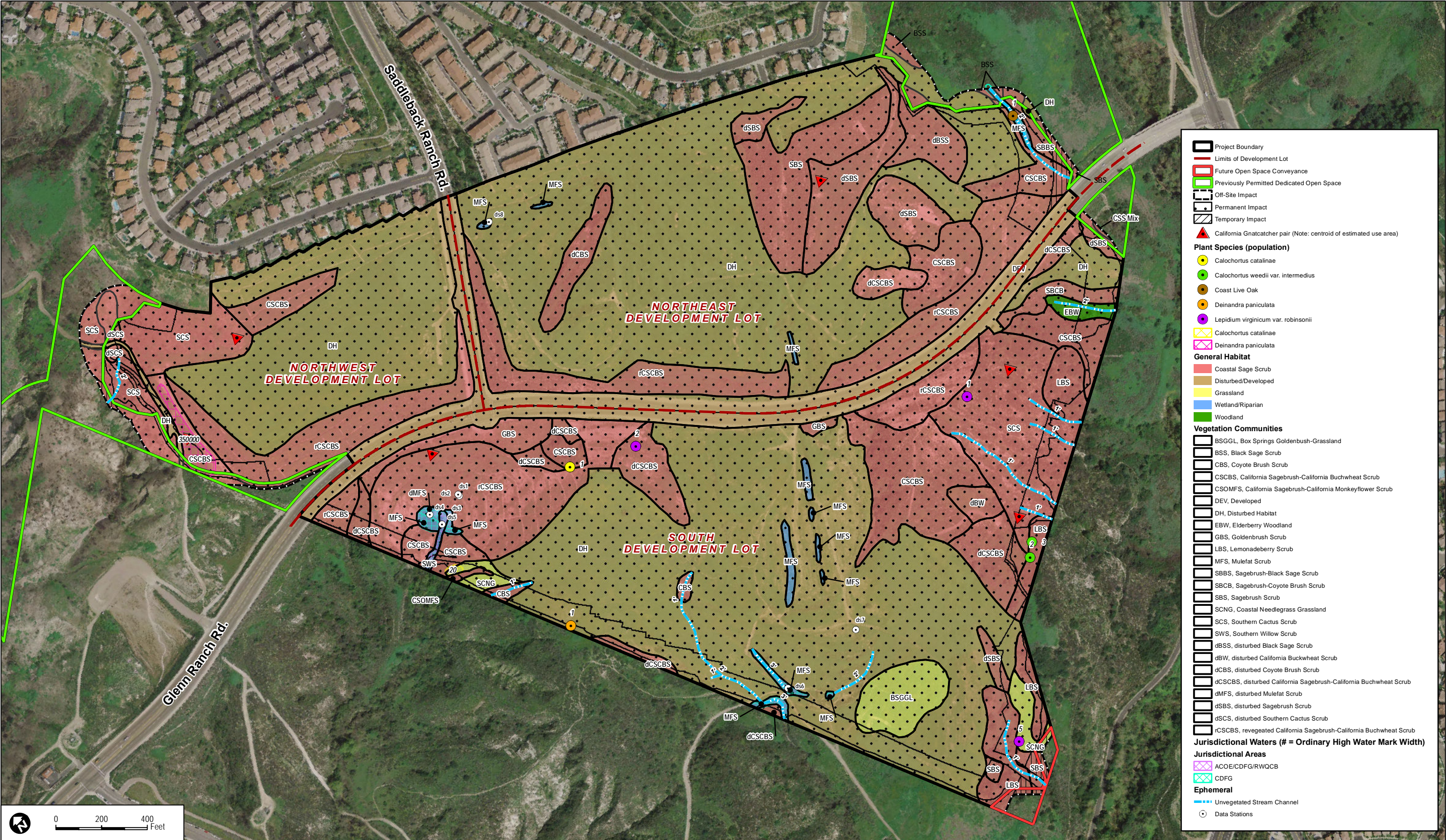
foot temporary construction easement; the Open Space – South parcel also includes a small portion of a manufactured slope that extends beyond the brush management zone and, therefore, is considered a temporary impact. Table 8 provides the acreage and type of direct impacts to the specific vegetation communities in the Project Area.

Table 8  
Direct Impacts to Vegetation Communities (Acres)

Vegetation Communities and Land Cover Types	Permanent Impacts							Subtotal Permanent	Temporary Impacts				Subtotal Temporary	Total
	Development - NE	Development - NW	Development - South	Road	Open Space - NE	Open Space - NW	Open Space - SE		Development - NE	Development - South	Open Space - NW	Open Space - SE		
Grassland Subtotal			3.29					3.29		0.04		0.07	0.11	3.39
Box Springs goldenbush grassland			2.23					2.23						2.23
Southern coastal needlegrass grassland			1.05					1.05		0.04		0.07	0.11	1.16
Coastal Sage Scrub Subtotal	25.40	10.96	39.34	0.00	0.70	2.29	0.10	78.78	0.32	0.29	0.17	0.16	0.94	79.72
Black Sage Scrub					0.27			0.27						0.27
California Sagebrush-California Buckwheat Scrub	3.01	2.19	8.16		0.02	0.21		13.59	0.21		0.01		0.22	13.81
California Sagebrush-California Monkeyflower Scrub			0.12					0.12						0.12
Coyote Brush Scrub			0.38					0.38						0.38
disturbed Black Sage Scrub	1.67				0.13			1.80						1.80
disturbed California Buckwheat Scrub			0.62					0.62						0.62
disturbed California Sagebrush-California Buckwheat Scrub	0.76		5.08					5.84						5.84
disturbed Coyote Brush Scrub	1.40							1.40						1.40
disturbed Sagebrush Scrub	5.17		0.59		0.11	0.30		6.17						6.17
disturbed Southern Cactus Scrub		0.17						0.17						0.17
Goldenbush Scrub			1.67					1.67						1.67
Lemonadeberry Scrub			3.83				0.10	3.93		0.16		0.05	0.20	4.13
Mixed Coastal Sage Scrub					0.03			0.03						0.03
revegetated California Sagebrush-California Buckwheat Scrub	8.26	4.62	10.43	0.00		0.18		23.49	0.04		0.08		0.12	23.61
Sagebrush Scrub	4.78		0.29					5.07	0.01	0.13		0.11	0.25	5.32
Sagebrush-Black Sage Scrub	0.34				0.14			0.48	0.07				0.07	0.55
Sagebrush-Coyote Brush Scrub			0.84					0.84						0.84
Southern Cactus Scrub		3.98	7.33			1.60		12.91			0.08		0.08	12.99
Other Upland Subtotal	0.12		0.98					1.10						1.10
Elderberry Woodland			0.51					0.51						0.51
Mule Fat Scrub	0.12		0.47		0.04			0.63						0.63
Wetland/Riparian Subtotal	0.16		0.83					1.00						1.00
disturbed Mule Fat Scrub			0.12					0.12						0.12
Mule Fat Scrub	0.16		0.54					0.70						0.70
Southern Willow Scrub			0.17					0.17						0.17
Disturbed/Developed Subtotal	44.22	19.07	49.52	1.28				114.09						114.09
Developed	4.98	1.52	4.83	1.28				12.60						12.60
Disturbed Habitat	39.25	17.56	44.69		0.84	0.02		102.35						102.35
Total	69.90	30.03	93.96	1.28	0.70	2.29	0.10	198.26	0.32	0.33	0.17	0.22	1.05	199.31

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## Biological Technical Report for the Portola Center

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### 5.1.2 Jurisdictional Wetlands and Waters

Direct impacts to jurisdictional wetlands and waters under regulatory jurisdiction of ACOE, CDFG, and RWQCB, due to grading are summarized in Table 9. No temporary impacts will occur within any mapped jurisdictional areas. Brush management is not considered an impact to unvegetated waters since the function of the waters would not be affected by the activity. Furthermore, the ACOE/RWQCB does not regulate the clearing of vegetation and, therefore, the small acreage of brush management within ACOE/RWQCB-jurisdictional wetlands is not included in the jurisdictional total for those agencies.

### 5.1.3 Special-Status Plant Species

The project would impact all special-status species recorded on site including an estimated 21 Catalina mariposa lilies (although a portion of the individuals are located within the brush management zone and are expected to persist), 5 intermediate mariposa lilies, approximately 344,000 paniculate tarplant (approximately 7000 individuals are located within the brush management zone are expected to persist), and 8 Robinson's peppergrass plants. These impacts are summarized in Table 10 and shown in Figure 6.

### 5.1.4 Special-Status Wildlife Species

The project would impact the location of breeding territories of six pairs of federally listed threatened coastal California gnatcatcher. Three pairs are located in Development - South, one pair is located in Development - NE, and two pairs are located in Development - NW.

The proposed project also has the potential to impact nesting loggerhead shrike and prairie falcon (although nests of these species were not observed during wildlife surveys). Nests of white-tailed kite, Cooper's hawk, and red-shouldered hawk, if present, would be in areas northwest of the current project boundary in areas that have been dedicated to the NCCP/HCP Reserve. Foraging habitat for all of these species would be impacted; although varied by species, all natural communities provide some wildlife habitat and a total of 85.3 acres would be directly impacted by the project.

Large-blotched salamander, western spadefoot, orange-throated whiptail, coastal western whiptail, coast horned lizard, San Diego ringneck snake, coyote (*Canis latrans*), Dulzura pocket mouse, northwestern San Diego pocket mouse, San Diego desert woodrat, southern grasshopper mouse, and gray fox may be directly impacted by the project. Foraging habitat of Mexican long-tongued bat (*Choeronycteris mexicana*), Townsend's big-eared bat, western mastiff bat, pocketed free-tailed bat and big free-tailed bat also may be impacted.

## Biological Technical Report for the Portola Center

**Table 9**  
**Direct Impacts to Jurisdictional Waters (Acres)**

	Permanent Impacts – Grading*			Total
	<i>Development - NE</i>	<i>Development - NW</i>	<i>Development - South</i>	
<b>ACOE/CDFG/RWQCB</b>	<b>0.01</b>	<b>0.01</b>	<b>0.25</b>	<b>0.27</b>
Southern Willow Scrub	--	--	0.16	0.16
Ephemeral Waters	0.01	0.01	0.09	0.11
<b>CDFG</b>	<b>0.14</b>	<b>--</b>	<b>0.63</b>	<b>0.77</b>
disturbed Mulefat Scrub	--	--	0.12	0.12
Mulefat Scrub	0.14	--	0.50	0.64
<b>ACOE/RWQCB</b>	<b>0.01</b>	<b>--</b>	<b>0.03</b>	<b>0.04</b>
Ephemeral Waters	0.01	--	0.03	0.04
<i>Subtotal ACOE/RWQCB Jurisdiction</i>	<i>0.02</i>	<i>0.01</i>	<i>0.28</i>	<i>0.31</i>
<i>Subtotal CDFG Jurisdiction</i>	<i>0.14</i>	<i>--</i>	<i>0.88</i>	<i>1.02</i>

\* Acreage of brush management impacts are not included in this table because this activity does not impact ephemeral waters and this impact on riparian habitat is not regulated by ACOE/RWQCB. Brush management impacts to riparian habitat is regulated by CDFG; for the acreage of this impact please refer to Table 8 or Table 14.  
(Totals may not sum due to rounding)

**Table 10**  
**Direct Impacts to Special-Status Plant Species**

Plant Species	Development - NW	Development - NW (FMZ)	Development - South	Development - South (FMZ)
Catalina mariposa lily			21	
Intermediate mariposa lily				5
Paniculate tarplant	343000	7000		7
Robinson's peppergrass			8	

FMZ = Fuel Management Zone (outside the limits of grading)

## **Biological Technical Report for the Portola Center**

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### **5.1.5 Wildlife Corridors and Habitat Linkages**

The Project Area is identified as occurring in the general area of a major wildlife corridor and habitat linkage between the Cleveland National Forest and urban conservation lands to the south and southwest. The linkage is principally provided by the Whiting Ranch Wilderness Park but the loss of 84.17 acres of open land within the corridor does represent a direct impact to movement and linkage functions.

## **5.2 Indirect Impacts**

### **5.2.1 Special-Status Vegetation Communities**

Construction-related sedimentation, siltation, erosion, or pollutant run-off could indirectly impact growth of vegetation in special-status vegetation communities adjacent to the development area. Potential long-term indirect effects resulting from the presence of a residential development near special-status vegetation communities include introduction of invasive plants and increased treading and trampling in sensitive habitat areas.

### **5.2.2 Jurisdictional Waters**

Potential indirect impacts to jurisdictional waters include reduction in water quality through dust, sedimentation, erosion, runoff and toxic pollution. These potential impacts include both short-term impacts during project construction and long-term impacts as a result of reduced porous surface area due to construction of roads, driveways, sidewalks, and buildings, and activities within brush management zones.

### **5.2.3 Special-Status Plant Species**

The number and types of special-status plant species adjacent to the proposed development are unknown, however, suitable habitat for numerous species exists. Therefore, indirect impacts to vegetation communities discussed above, may also adversely impact special-status plant species in the vicinity, both in the short- and long-term.

### **5.2.4 Special-Status Wildlife Species**

Project construction activities will result in a short-term increase in noise levels due to mechanized and material transport. This could potentially include noise impacts to sensitive riparian bird species, such as yellow warbler (*Dendroica petechia*), that may nest along Aliso Creek.

Potential long-term indirect impacts resulting from the presence of a residential development include increased lighting and introduction or artificial enhancement of mesopredator



## **Biological Technical Report for the Portola Center**

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populations. Domestic cats and dogs from residences in the development may prey upon birds, reptiles, and small mammals within adjacent open space areas. Lighting from streets and residences in the development could interfere with the activities of nocturnal reptiles, mammals, and raptors in adjacent open space areas.

### **5.2.5 Wildlife Corridors and Habitat Linkages**

Street and residential lighting may have long term indirect impacts on wildlife movement through the Whiting Ranch Wilderness Park, part of a regional wildlife corridor.

### **5.3 Cumulative Impacts**

Implementation of the proposed Portola Center development would contribute to the cumulative loss of biological resources within central Orange County. The cumulative loss of resources may be considered significant based on the rarity of habitats or species affected by the project. However, the proposed project is consistent with the provisions of the Central/Coastal NCCP/HCP and mitigation fees paid to compensate for the loss of coastal sage scrub vegetation will contribute to the long-term adaptive management program for the reserve that was developed and is being implemented to address cumulative loss of vegetation and wildlife habitat in this portion of Orange County.

## **6.0 ANALYSIS OF SIGNIFICANCE**

### **6.1 Explanation of Findings of Significance**

Impacts to native vegetation communities, special-status plant wildlife species must be quantified and analyzed to determine whether such impacts are significant under the California Environmental Quality Act (CEQA). For purposes of this report, the proposed project may have a significant effect on the environment if the project has the potential to impact directly, indirectly, or cumulatively the following: (1) special-status vegetation communities; (2) special-status species; (3) raptor foraging habitat or wildlife movement; (4) conformance with applicable ordinances, policies, and the existing Central/Coastal NCCP/HCP.

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions, but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether or not that impact can be mitigated to a level below significant.

## Biological Technical Report for the Portola Center

The Opportunities Study EIR analyzes these impacts as well. The results of the EIR are listed in each of the following sections on direct impacts.

### 6.2 Direct Impacts

#### 6.2.1 Special-Status Vegetation Communities

Direct impacts (both permanent and temporary) are significant to the following communities considered sensitive by CDFG (2010), regulated by the ACOE, CDFG, and/or RWQCB, and/or covered by the Central/Coastal NCCP/HCP: 79.72 acres of coastal sage scrub vegetation, 0.82 acre of mulefat scrub, and 0.17 acre of southern willow scrub (Table 8).

As discussed in Section 4.5, permanent impacts to communities covered under the NCCP/HCP will be mitigated, in accordance with the Minor Amendment (City of Lake Forest 2010). As such, impacts to those communities are to be quantified per the 1997 NRC vegetation mapping (Figure 4). Permanent impacts to communities based on this analysis are provided in Table 11. These permanent impact acreages (137.46 acres) will be used for calculations of mitigation in lieu of the permanent impact acreage calculation based on current vegetation mapping (81.39 acres). The increased impact acreage represents areas currently mapped as coastal sage scrub as well as areas mapped as disturbed habitat, coastal needlegrass (native) grassland, and elderberry woodland. Mitigation will be required based on the 1997 occurrence of coastal sage scrub and various subtypes.

**Table 11**  
**Direct Impacts Based on NRC 1997 CSS Vegetation Mapping**

Vegetation Community	Development - NE	Development - NW	Development - South	Open Space - NW	Total
CSS–Black Sage	0.24				0.24
CSS–Mixed		3.77	16.00	0.03	19.81
CSS–Prickly Pear		0.01	1.81		1.83
CSS–Rhus (lemonadeberry)		0.42	2.38	0.01	2.81
CSS–Sage Brush	3.30	0.11	14.88		18.29
CSS/Ruderal	22.42	8.83	12.54	0.07	43.86
Ruderal/CSS	28.98	7.32	10.04	0.03	46.37
<b>Total</b>	<b>54.94</b>	<b>20.46</b>	<b>57.65</b>	<b>0.15</b>	<b>133.21</b>

Source: Natural Resource Consultant 1995

Project implementation would have a substantial adverse effect to these special-status vegetation communities, as addressed in the Opportunities Study EIR.

## Biological Technical Report for the Portola Center

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### 6.2.2 Jurisdictional Waters

All impacts to jurisdictional waters, including wetlands, under ACOE, CDFG, and/or RWQCB are considered significant due to regulation by those agencies. The proposed project, according to the Opportunities Study EIR, would have a substantial adverse effect on jurisdictional waters.

### 6.2.3 Special-Status Plant Species

Direct impacts to 21 Catalina mariposa lilies are considered significant due to coverage of these species under the NCCP/HCP. Impacts to 8 Robinson's peppergrass are considered less than significant because these impacts are so small (i.e., few individuals) that they will not contribute substantially to the permanent loss of this species.

Impacts to approximately 343,000 paniculate tarplant are considered less than significant because these impacts will not contribute substantially to the permanent loss of this species, which is fairly common in Southern California, as reflected by its low CRPR of 4.2. The species has a CRPR of 4.2 because it is relatively wide-ranging (the species occurs in coastal regions of California from San Luis Obispo to San Diego) and is relatively common where it occurs, but has a limited distribution within its range. Although the number of individuals recorded onsite was high, this number represents a temporary post-fire condition that is not uncommon for this type of species. The population number would be expected to decline as plants mature to full stature and the area occupied by the species is also small compared with typical populations of the species which, based on the experience of Dudek botanists, can often occupy several acres.

A review of available population data for this species was conducted, however, limited information is available due to the low rarity status of this species. Records of occurrence are not maintained in the CNDDDB (2011a). Jepson eFlora (2012) and Munz (1974) do not provide information on abundance or commonality of the species. The species is not specifically addressed in any of regional conservation plans within its range (i.e., NCCP's in Orange, San Diego, or Riverside County). Beauchamp (1986), although written for San Diego County, describes the species as "frequent, on slopes and mesas". There are 16 records in the Consortium of California Herbaria (CCH) (2012) from Orange County. One record included a count of approximately 20 plants; however the other abundance descriptions are qualitative; two records described the occurrence as "locally common or abundant", one was "occasional to common", five were described as "occasional", and three were described as "uncommon". The remaining records from Orange County do not include any description of abundance. This review indicates that although some occurrences are small, it is not uncommon to find relatively large populations (e.g., "frequent" or "abundant") of the species.

## **Biological Technical Report for the Portola Center**

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Based on review of the available population data for this species in Orange County, given the plant's low rarity status, its lack of specific identification in regional conservation plans in Southern California, and its relative abundance in locations where it does occur, the occurrence of the species within the Portola Center project is not considered regionally significant and the removal of this species would not appreciably reduce the distribution or abundance of this species in the region or otherwise result in a substantial adverse effect. Therefore, the removal of this occurrence of paniculate tarplant is not a significant impact.

Populations of intermediate mariposa lily and paniculate tarplant within the brush management zone are not considered impacted because brush management activities are not likely to preclude persistence of these species.

The Opportunities Study EIR determined that the Proposed Project would have a substantial adverse effect on special-status plant species, either directly or through habitat modification.

### **6.2.4 Special-Status Wildlife Species**

Project impacts or potential impacts to habitat of California gnatcatcher, red-shouldered hawk, prairie falcon, loggerhead shrike and to western spadefoot, orange-throated whiptail, coast horned lizard, coyote, San Diego desert woodrat, and gray fox would be considered significant because these species are covered by the Central/Coastal NCCP/HCP thus requiring analysis of project conformance. Impacts to white-tailed kite are prohibited under California Fish and Game Code, Section 3511. Impacts to nesting Cooper's hawk and other nesting raptors are prohibited under Section 3503.5.

Potential project impacts to San Diego ringneck snake are considered to be less than significant because the loss of limited potential habitat along streams would not contribute substantially to the permanent loss of this common, but secretive species, on a regional basis.

Potential impacts to foraging habitat of Mexican long-tongued bat, Townsend's big-eared bat, western mastiff bat, pocketed free-tailed bat, and big free-tailed bat are considered less than significant. These species are not anticipated to roost on site and the potential loss of foraging habitat is not likely to contribute to the permanent loss of these species on a regional level.

Potential impacts to large-blotched salamander, Dulzura pocket mouse, northwestern San Diego pocket mouse, and southern grasshopper mouse due to loss of coastal sage scrub and/or non-native grassland habitat would be considered significant.

The Opportunities Study EIR determined that the Proposed Project would have a substantial adverse effect on sensitive wildlife species, either directly or through habitat modification.

## **Biological Technical Report for the Portola Center**

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### **6.2.5 Wildlife Corridors and Habitat Linkages**

The loss of substantial open land in the vicinity of an important regional wildlife corridor and habitat linkage is a potentially significant impact.

The Opportunities Study EIR determined that the Proposed Project could interfere substantially with the movement of wildlife or with established wildlife corridors.

## **6.3 Indirect Impacts**

### **6.3.1 Special-Status Vegetation Communities**

Implementation of a Stormwater Pollution Prevention Plan (SWPPP) required to obtain a grading permit would reduce short-term indirect impacts to special-status vegetation communities to a less than significant level.

Long-term indirect impacts will result from “edge effects.” Given the proximity of the development to the Reserve and the importance of the adjacent Reserve areas in conserving special-status vegetation communities, these long-term indirect impacts are considered significant.

The Opportunities Study EIR determined that the Proposed Project could result in significant long-term indirect impacts to special-status vegetation communities.

### **6.3.2 Jurisdictional Waters**

Implementation of a SWPPP required to obtain a grading permit would reduce short-term indirect impacts to jurisdictional waters to a less than significant level.

Implementation of long-term Best Management Practices (BMPs) that eliminate hydromodification and reduce pollutant discharges to the maximum extent feasible, as required by the State Water Resource Control Board General Construction Permit, would reduce long-term indirect impacts to jurisdictional waters to a less than significant level.

The Opportunities Study EIR determined that the Proposed Project could result in significant long-term indirect impacts to jurisdictional waters.

### **6.3.3 Special-Status Plant Species**

Implementation of a SWPPP required to obtain a grading permit would reduce short-term indirect impacts to special-status plant species to a less than significant level.

## **Biological Technical Report for the Portola Center**

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Long-term indirect impacts will result from “edge effects.” Given the proximity of the development to the Reserve and the importance of the adjacent Reserve areas in conserving special-status plant species, these long-term indirect impacts are considered significant.

The Opportunities Study EIR determined that the Proposed Project could result in significant long-term indirect impacts to special-status plant species.

### **6.3.4 Special-Status Wildlife Species**

Although short-term indirect impacts to wildlife habitat would be mainly addressed through implementation of a SWPPP, potential noise-related disturbance during the breeding season is considered significant.

Long-term indirect impacts will result from “edge effects.” Given the proximity of the development to the Reserve and the importance of the adjacent Reserve areas in conserving special-status wildlife species, these long-term indirect impacts are considered significant.

The Opportunities Study EIR determined that the Proposed Project could result in significant long-term indirect impacts to special-status wildlife species.

### **6.3.5 Wildlife Corridors and Habitat Linkages**

Potential indirect impacts to the regional wildlife corridor due to street and residential lighting would be considered significant. The Opportunities Study EIR determined that the Proposed Project could result in significant long-term indirect impacts to regional wildlife corridor function.

## Biological Technical Report for the Portola Center

### 6.4 Summary of Impacts and Significance Determinations

**Table 12**  
**Summary of Impacts and Significance Determinations**

Biological Resource	Impacts		
	<i>Direct</i>	<i>Indirect (Short-Term)</i>	<i>Indirect (Long-Term)</i>
<i>Special-Status Vegetation Communities</i>			
Coastal sage scrub	Significant	Less Than Significant	Significant
Southern coastal needlegrass (native) grassland	Significant	Less Than Significant	Significant
Elderberry woodland	Significant	Less Than Significant	Significant
Jurisdictional wetlands	Significant	Less Than Significant	Significant
Other vegetation communities and land cover types (non-special-status)	Less Than Significant	Less Than Significant	Less Than Significant
<i>Jurisdictional Waters</i>			
Ephemeral stream channels	Significant	Less Than Significant	Less Than Significant
<i>Special-Status Plant Species</i>			
Catalina mariposa lily	Significant	N/A	N/A
Intermediate mariposa lily	No Impacts	N/A	N/A
Robinson's peppergrass	Less Than Significant	N/A	N/A
Paniculate tarplant	Less Than Significant	N/A	N/A
Potential off-site special-status plant species (not yet identified)	N/A	Less Than Significant	Significant
<i>Special-Status Wildlife Species</i>			
Species covered under NCCP/HCP	Significant	Significant	Significant
San Diego ringneck snake, several bat species	Less Than Significant	Less Than Significant	Less Than Significant
Large-blotched salamander, Dulzura pocket mouse, San Diego pocket mouse, southern grasshopper mouse	Significant	Less Than Significant	Significant
Wildlife Corridors and Habitat Linkage	Significant	Less Than Significant	Significant

No new significant impacts have been identified that were not already disclosed in the Opportunities Study EIR and mitigation provided is consistent with mitigation anticipated in that EIR.

## **Biological Technical Report for the Portola Center**

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### **7.0 PROPOSED CONSERVATION AND MITIGATION MEASURES**

This section contains recommendations for feasible measures to avoid, minimize, or mitigate direct and indirect impacts to sensitive biological resources on site (special-status vegetation communities, jurisdictional waters, special-status plant species and special-status wildlife species) to a level considered less than significant under CEQA and to comply with other applicable laws and regulations.

#### **7.1 Central/Coastal NCCP/HCP Mitigation**

Significant permanent direct impacts to coastal sage scrub communities shall be mitigated in accordance with the Central/Coastal NCCP/HCP. The Minor Amendment for the Portola Center Project outlines the required mitigation to comply with the Plan (City of Lake Forest 2010). This mitigation includes the following provisions (Figure 7):

1. Account for mitigation requirement based on 1997 CSS vegetation mapping
2. Provide for mitigation credits for lands supporting CSS that are dedicated to the Reserve (including parcels already dedicated to the Reserve as well as areas that will be dedicated as part of the Final Map for the development)
3. Provide for mitigation credits for lands supporting southern cactus scrub (SCS) revegetation within the Reserve
4. Provide for mitigation credits for lands supporting SCS revegetation within brush management zones both within the Reserve and within the Project Area at 66% credit
5. Provide in-lieu mitigation fee for remaining mitigation requirements.

Lands protected through dedication of open space through the Final Map recordation and areas established with southern cactus scrub revegetation shall be protected in perpetuity through implementation of a Resource Management Plan (RMP) that describes management and monitoring activities and the method of funding those activities in perpetuity. The tabulation of remaining in-lieu mitigation fee requirements is provided in Table 13 based on the current development plan and southern cactus scrub revegetation plan.



## Biological Technical Report for the Portola Center

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**Table 13**  
**Central/Coastal NCCP/HCP In-Lieu Fee Calculation**

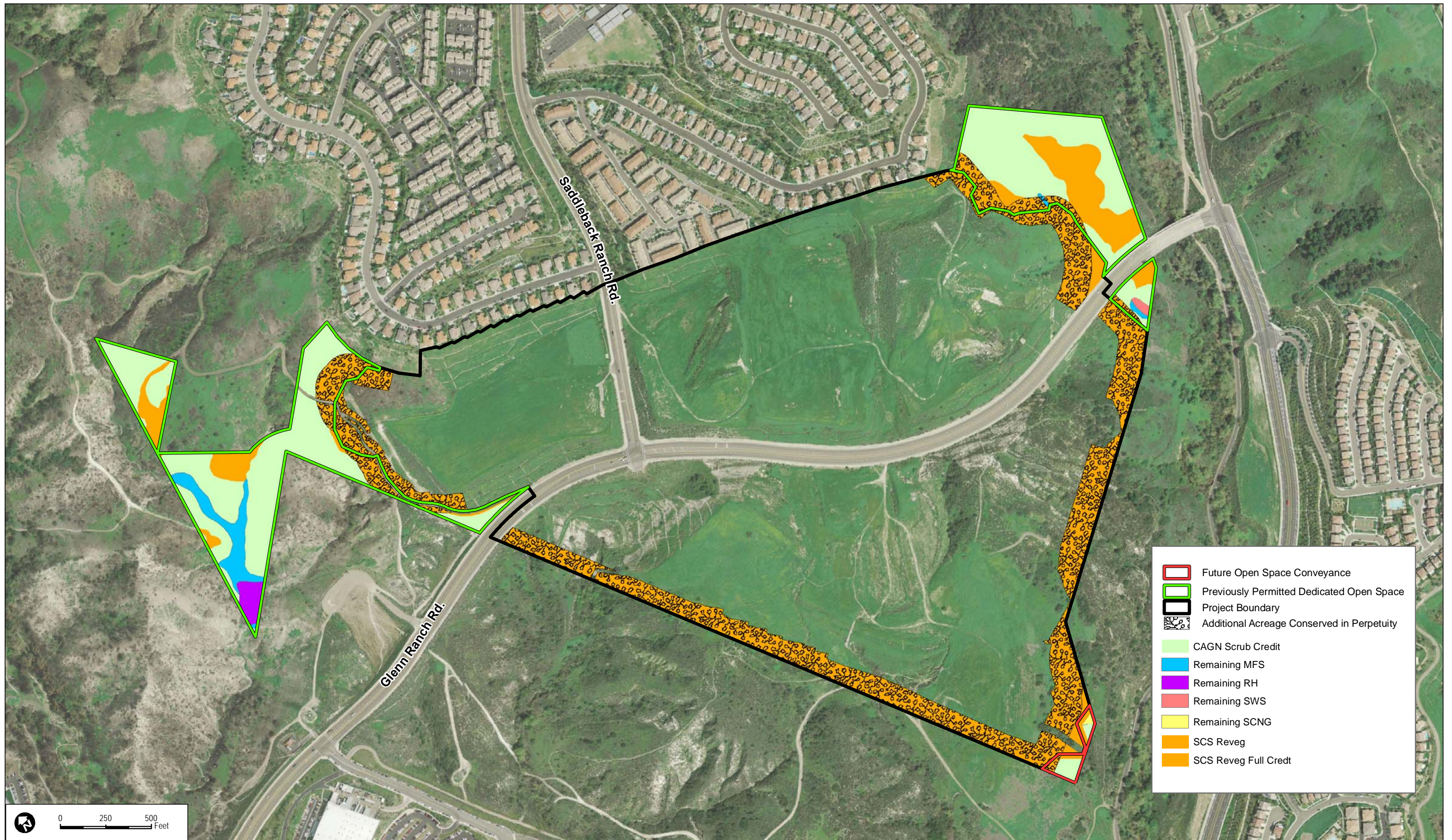
Source of Credits	Acres
CAGN Habitat in Previously Dedicated Open Space	19.82
CAGN Habitat in Future Dedicated Open Space	0.41
SCS Revegetation (No BMZ - 100% Credit)	6.57
SCS Revegetation (In BMZ - 66% credit)	15.60
Total Credits	42.40
Impact	133.21
Credit	42.40
Net	90.81

CAGN = California gnatcatcher  
SCS = Southern cactus scrub  
BMZ = Brush management zone

These mitigation measures adequately offset impacts to species and habitats covered under the Central/Coastal NCCP/HCP including indirect impacts, since revegetation and in-lieu fee payments will address management requirements by reducing adverse intrusions (e.g., invasive exotics, human trampling, etc.) and providing for land management funding, respectively.

Provision #1 listed above is provided in this technical report. Provision #2 has been provided by the applicants through previous land dedications and planned land dedication per the currently proposed Tentative Map. It should be noted that impacts to the existing and planned Open Space areas are consistent with the NCCP/HCP in that those impacts are either temporary in nature or limited to brush management, utility easements, or trails all of which are allowable uses within the Reserve. Provisions #3 and 4 shall be provided through implementation of the Conceptual Southern Cactus Scrub Revegetation and Management Plan (Dudek 2011). Reference to implementation of the southern cactus scrub revegetation on grading, improvement, and/or landscape plans, as appropriate, shall constitute implementation for purposes of satisfying pre-grading requirements. Proof of payment and acceptance by NROC of fees listed under provision #5 shall be provided by the applicants. Each of these provisions shall be implemented prior to grading.







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## Biological Technical Report for the Portola Center

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The following measures are required by the Central/Coastal NCCP/HCP to ensure that additional direct impacts, beyond those anticipated in this report, are avoided and minimized to protect wildlife breeding:

1. To the maximum extent practicable, no grading of coastal sage scrub (CSS) habitat that is occupied by nesting gnatcatchers will occur during the breeding season (February 15 through July 15). It is expressly understood that this provision and the remaining provisions of these "construction-related minimization measures," are subject to public health and safety considerations. These considerations include unexpected slope stabilization, erosion control measure and emergency facility repairs. In the event of such public health and safety circumstances, landowners or public agencies/utilities will provide USFWS/CDFG with the maximum practicable notice (or such notice as is specified in the NCCP/HCP) to allow for capture of gnatcatchers, cactus wrens and any other CSS Identified Species that are not otherwise flushed and will carry out the following measures only to the extent as practicable in the context of the public health and safety considerations.
2. Prior to the commencement of grading operations or other activities involving significant soil disturbance, all areas of CSS habitat to be avoided under the provisions of the NCCP/HCP, shall be identified with temporary fencing or other markers clearly visible to construction personnel. Additionally, prior to the commencement of grading operations or other activities involving disturbance of CSS, a survey will be conducted to locate gnatcatchers and cactus wrens within 100 feet of the outer extent of projected soil disturbance activities and the locations of any such species shall be clearly marked and identified on the construction/grading plans.
3. A monitoring biologist, acceptable to the City of Lake Forest will be on site during any clearing of CSS. The landowner or relevant public agency/utility will advise USFWS/CDFG at least seven (7) calendar days (and preferably fourteen (14) calendar days) prior to the clearing of any habitat occupied by Identified Species to allow USFWS/CDFG to work with the monitoring biologist in connection with bird flushing/capture activities. The monitoring biologist will flush Identified Species (avian or other mobile Identified Species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities. If birds cannot be flushed, they will be captured in mist nets, if feasible, and relocated to areas of the site be protected or to the NCCP/HCP Reserve System. It will be the responsibility of the monitoring biologist to assure that Identified bird species will not be directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities on a timely basis.

## **Biological Technical Report for the Portola Center**

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4. Following the completion of initial grading/earth movement activities, all areas of CSS habitat to be avoided by construction equipment and personnel will be marked with temporary fencing other appropriate markers clearly visible to construction personnel. No construction access, parking or storage of equipment or materials will be permitted within such marked areas.
5. In areas bordering the NCCP Reserve System or Special Linkage/Special Management areas containing significant CSS identified in the NCCP/HCP for protection, vehicle transportation routes between cut-and-fill locations will be restricted to a minimum number during construction consistent with project construction requirements. Waste dirt or rubble will not be deposited on adjacent CSS identified in the NCCP/HCP for protection. Preconstruction meetings involving the monitoring biologist, construction supervisors and equipment operators will be conducted and documented to ensure maximum practicable adherence to these measures.
6. CSS identified in the NCCP/HCP for protection and located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves as recommended by the monitoring biologist.

### **7.2 Special-Status Vegetation Communities and Jurisdictional Waters**

As discussed above, mitigation in accordance with the Central/Coastal NCCP/HCP and Minor Amendment will mitigate permanent impacts to coastal sage scrub communities. Additional special-status communities and jurisdictional waters that require mitigation for direct permanent impacts are addressed in Table 14.

## Biological Technical Report for the Portola Center

**Table 14**  
**Recommended Mitigation for Temporary Impacts to**  
**Special-Status Vegetation Communities and Permanent Impact to Jurisdictional Waters**

Vegetation / Land Cover	Direct Impacts(Acres)	Recommended Mitigation		
		Ratio	Acreage	Type
Upland Vegetation				
Various coastal sage scrub types	0.94 (temporary)	1:1	0.94	Revegetation of any disturbed areas within the potential 0.94 temporary impact area
Jurisdictional Waters and Wetlands				
Mulefat scrub (CDFG-jurisdictional)	0.82	2:1 (1:1 for disturbed)	1.64	0.82 acre (1:1) creation; 0.82 acre riparian enhancement (exotic removal)
Southern willow scrub (ACOE/RWQCB/CDFG)	0.17	3:1	0.51	0.17 acre (1:1) creation; 0.34 acre (2:1) riparian enhancement (exotic removal)
Non-Wetland Waters (ACOE/RWQCB/CDFG)	0.10	1:1	0.10	0.10 acres (1:1) creation
Non-Wetland Waters (ACOE/RWQCB)	0.04	1:1	0.04	0.04 acres (1:1) creation
Subtotal – ACOE/RWQCB Jurisdictional Waters and Wetlands	0.31	--	0.65	0.31 acre creation; 0.34 acre enhancement
Subtotal – CDFG Jurisdictional Waters and Wetlands	1.09		2.25	1.09 acre creation; 1.16 acre enhancement

Mitigation for anticipated direct permanent impacts to 1.09 acre of wetlands and waters under the jurisdiction of the CDFG and 0.31 acres of wetlands and waters under jurisdiction of ACOE and RWQCB (which is a portion of the 0.86 acre under CDFG jurisdiction) is recommended in the form of creation of 2.25 acres of jurisdictional land, including at least 0.17 acre of southern willow scrub vegetation, and restoration, enhancement, or preservation of an additional 2.08 acre of riparian habitat (Table 13).

Additional or more specific mitigation requirements may be required to obtain the required Clean Water Act Section 401 Water Quality Certification from RWQCB, to obtain a Section 404 Nationwide Permit 29 (Residential Development) from ACOE, and to obtain a California Fish and Game Code Section 1602 Streambed Alteration Agreement (SAA) from CDFG.

No appropriate areas are present on the Project Area for riparian habitat or creation. Prior to issuance of a grading permit, appropriate off-site creation, enhancement and/or preservation shall be identified or mitigation credits shall be obtained from an approved mitigation bank, or equivalent approved by the wetlands resource agencies. For project-specific mitigation, a conceptual mitigation plan shall be developed subject to the approval of the City and funding for long-term conservation and habitat maintenance shall be secured. The plan should, at a minimum, describe mitigation goals, methods, suitability of the site, implementation plan,

## **Biological Technical Report for the Portola Center**

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monitoring and maintenance, and success criteria. These mitigation measures would reduce the net direct impact of the project to jurisdictional waters to less than significant.

Direct temporary impacts to 0.94-acre of coastal sage scrub vegetation communities from construction (graded slopes which extend beyond the brush management zone and the 25-foot temporary construction easement) shall be restored following completion of grading activities according to a Revegetation Plan that prescribes appropriate native plant treatments to the temporary impact areas. The Revegetation Plan shall include a description of the revegetation methods, maintenance, and monitoring and shall be subject to approval by the City prior to the issuance of a grading permit.

The mitigation measures listed in Sections 7.1 and 7.2 would reduce the net direct impact of the project to special-status vegetation communities and jurisdictional waters to less than significant.

### **7.3 Sensitive Wildlife**

Mitigation measures provided in the NCCP/HCP and listed in Section 7.1 will protect sensitive wildlife from direct and indirect impacts. Additional protection of general avian wildlife in compliance with the Migratory Bird Treaty Act and California Code will be accomplished by either scheduling vegetation removal between July 15 and February 15 OR if vegetation must be cleared during the nesting season (February 15–July 15), all suitable habitat will be thoroughly surveyed for the presence of nesting birds by a qualified biologist 72 hours prior to clearing. If any active nests are detected, the area will be flagged and mapped on construction plans along with a minimum 25-foot buffer up to a 300-foot maximum for raptors, as determined by the qualified biologist. These areas will be avoided until the nesting cycle is complete or it is determined that the nest has failed.

Potential significant direct impacts to large-blotched salamander, Dulzura pocket mouse, northwestern San Diego pocket mouse, and southern grasshopper mouse due to loss of coastal sage scrub (78.78 acres) and/or grassland habitat (3.29 acres) would be mitigated by mitigation for 133.21 acre of coastal sage scrub under the NCCP/HCP.

The mitigation measures listed in Sections 7.1-7.3 would reduce the net direct and indirect impacts of the project to special-status wildlife species to less than significant.

## Biological Technical Report for the Portola Center

### 7.4 Summary of Mitigation Measures and Significance Determinations

**Table 15**  
**Summary of Impacts and Significance Determinations**

Significant Impacts	Mitigation Measures Required to Reduce Impacts to Less Than Significant
Direct impacts to vegetation communities covered under the NCCP/HCP	Implementation of mitigation required in Minor Amendment
Direct impacts to non-covered vegetation communities (including jurisdictional waters)	Implementation of mitigation listed in Table 14
Long-term indirect impacts to special-status vegetation communities	Implementation of mitigation required in Minor Amendment including payment in in-lieu fee and implementation of RMP
Direct impacts to special-status plant species covered under the NCCP/HCP	Implementation of mitigation required in Minor Amendment
Long-term indirect impacts to special-status plant species	Implementation of mitigation required in Minor Amendment including payment in in-lieu fee and implementation of RMP
Direct impacts to special-status wildlife species covered under the NCCP/HCP	Implementation of mitigation required in Minor Amendment
Direct impacts to special-status wildlife species not covered under the NCCP/HCP	Implementation of mitigation required in Minor Amendment and mitigation listed in Table 14
Short-term indirect impacts to special-status wildlife species	Avoidance of vegetation clearing during the breeding season OR implementation of nest avoidance measures listed in Section 7.3
Long-term indirect impacts to special-status wildlife species	Implementation of mitigation required in Minor Amendment including payment in in-lieu fee and implementation of RMP
Direct and indirect impacts to wildlife corridors & habitat linkages	Implementation of mitigation required in Minor Amendment including payment in in-lieu fee and implementation of RMP

As listed above, all identified significant impacts to biological resources would be mitigated to less than significant with the implementation of measures listed in Section 7 of this report.

### 8.0 ACKNOWLEDGMENTS

This report was prepared by Dudek biologists Patricia Schuyler, Vipul Joshi, Emily Wier, and Brock Ortega. Graphics and GIS analysis were provided by Mark McGinnis and Lesley Terry.

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APPENDIX A  
*Plant Species Observed on Site*



## Appendix A

### Plant Species Observed on Site

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#### VASCULAR PLANT SPECIES

##### LYCOPODS

##### **SELAGINELLACEAE – SPIKE-MOSS FAMILY**

*Selaginella bigelovii* – Bigelow's spike-moss

*Selaginella cinerascens* – ashy spike-moss

##### FERNS

##### **POLYPODIACEAE – POLYPODY FERN FAMILY**

*Polypodium californicum* – California polypody

##### **PTERIDACEAE – BRAKE FAMILY**

*Pellaea andromedifolia* – coffee fern

*Pellaea mucronata* var. *mucronata* – bird's-foot fern

#### ANGIOSPERMS (DICOTS)

##### **AMARANTHACEAE – AMARANTH FAMILY**

\* *Amaranthus* sp. – pigweed

##### **ANACARDIACEAE – SUMAC FAMILY**

*Malosma laurina* – laurel sumac

*Rhus integrifolia* – lemonadeberry

*Rhus ovata* – sugar bush

*Toxicodendron diversilobum* – western poison oak

##### **APIACEAE – CARROT FAMILY**

*Apiastrum angustifolium* – bur chervil

*Daucus pusillus* – rattlesnake weed

\* *Foeniculum vulgare* – fennel

##### **ASCLEPIADACEAE – MILKWEED FAMILY**

*Asclepias californica* – California or round-hooded milkweed

##### **ASTERACEAE – SUNFLOWER FAMILY**

*Acourtia microcephala* – sacapellote

*Ambrosia acanthicarpa* – annual bur-sage

*Ambrosia psilostachya* – western ragweed

*Artemisia californica* – California sagebrush

## Appendix A (Continued)

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- Artemisia douglasiana* – mugwort  
*Aster subulatus* var. *ligatus* – slim aster  
*Baccharis pilularis* – chaparral broom, coyote brush  
*Baccharis salicifolia* – mulefat, seep-willow, water-wally  
*Brickellia californica* – California brickellbush  
\* *Centaurea melitensis* – tocalote  
*Chaenactis glabriuscula* var. *glabriuscula* – yellow pincushion  
*Cirsium occidentale* var. *californicum* – California thistle  
*Conyza canadensis* – horseweed  
\* *Cotula* sp. – brass-buttons  
\* *Cynara cardunculus* – artichoke thistle  
*Deinandra* [= *Hemizonia*] *fasciculata* – fascicled tarweed  
*Deinandra* [= *Hemizonia*] *paniculata* – paniculate tarplant  
*Encelia californica* – California encelia  
*Encelia farinosa* – brittlebush, incienso  
*Ericameria palmeri* ssp. *palmeri* – Palmer's goldenbush  
*Eriophyllum confertiflorum* var. *confertiflorum* – long-stem golden yarrow  
*Filago californica* – California filago  
\* *Filago gallica* – narrow-leaf filago  
*Gnaphalium bicolor* – bicolor cudweed  
*Gnaphalium californicum* – California everlasting  
*Gnaphalium leucocephalum* – Sonora everlasting  
*Gutierrezia sarothrae* – broom snake-weed, matchweed  
*Helianthus annuus* – western sunflower  
*Heterotheca grandiflora* – telegraph weed  
*Heterotheca sessiflora* ssp. *echioides* – bristly golden aster  
\* *Hypochaeris glabra* – smooth car's-ear  
*Isocoma menziesii* ssp. *menziesii* – spreading goldenbush  
\* *Lactuca serriola* – prickly lettuce  
*Lasthenia californica* – common goldfields  
*Lessingia filaginifolia* var. *filaginifolia* – California-aster  
*Microseris douglasii* ssp. *douglassii* – Douglas' microseris  
\* *Picris echioides* – bristly ox-tongue  
*Senecio californicus* – California butterweed  
*Solidago californica* – California goldenrod  
\* *Sonchus oleraceus* – common sow thistle  
*Stephanomeria exigua* ssp. *deanei* – small wreath-plant  
*Stephanomeria virgata* ssp. *virgata* – virgate wreath-plant  
*Stylocline gnaphalioides* – everlasting nest straw

## Appendix A (Continued)

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*Uropappus lindleyi* – silver puffs  
*Xanthium strumarium* – cocklebur

### **BORAGINACEAE – BORAGE FAMILY**

*Amsinckia menziesii* –rancher’s fireweed  
*Cryptantha intermedia* – Nievitas cryptantha  
*Heliotropium curassavicum* – salt heliotrope  
*Pectocarya* sp.– pectocarya  
*Plagiobothrys nothofulvus* – rusty popcornflower

### **BRASSICACEAE – MUSTARD FAMILY**

- \* *Brassica nigra* – black mustard
- \* *Hirschfeldia incana* – short-pod mustard
- Lepidium virginicum* var. *robinsonii* – Robinson’s peppergrass

### **CACTACEAE – CACTUS FAMILY**

*Cylindropuntia prolifera* – cholla  
*Opuntia littoralis* – coastal prickly-pear

### **CAPRIFOLIACEAE – HONEYSUCKLE FAMILY**

*Sambucus mexicana* – blue elderberry

### **CARYOPHYLLACEAE – PINK FAMILY**

- Cardionema ramosissimum* – sand mat
- \* *Silene gallica* – common catchfly

### **CHENOPODIACEAE – GOOSEFOOT FAMILY**

- \* *Chenopodium album* – pigweed, lamb's-quarters
- Chenopodium californicum* – California goosefoot
- \* *Salsola tragus* – Russian thistle

### **CONVOLVULACEAE – MORNING-GLORY FAMILY**

*Calystegia macrostegia* – morning-glory

### **CRASSULACEAE – STONECROP FAMILY**

*Crassula connata* – pygmy-weed  
*Dudleya lanceolata* – lanceleaf or coastal dudleya  
*Dudleya pulverulenta* – chalky live-forever

### **CUCURBITACEAE – GOURD FAMILY**

*Cucurbita foetidissima* – calabazilla  
*Marah macrocarpus* var. *macrocarpus*– manroot, wild-cucumber



## Appendix A (Continued)

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### **CUSCUTACEAE – DODDER FAMILY**

*Cuscuta californica* – dodder

### **EUPHORBIACEAE – SPURGE FAMILY**

*Chamaesyce albomarginata* – rattlesnake weed

\* *Chamaesyce maculata* – spotted spurge

*Croton setigerus* – doveweed

\* *Ricinus communis* – castor bean

### **FABACEAE – LEGUME FAMILY**

\* *Lathyrus vestitus* – wild pea

*Lotus purshianus* var. *purshianus* – Spanish-clover

*Lotus scoparius* var. *scoparius* – deerweed

*Lupinus succulentis* – arroyo lupine

*Lupinus truncatus* – collar lupine

\* *Medicago polymorpha* – California burclover

\* *Melilotus albus* – white sweet clover

\* *Melilotus indica* – sourclover

### **FAGACEAE – OAK FAMILY**

*Quercus agrifolia* – coast live oak

### **GERANIACEAE – GERANIUM FAMILY**

\* *Erodium moschatum* – white-stem filaree

### **GROSSULARIACEAE – CURRANT FAMILY**

*Ribes speciosum* – fuschia-flowered gooseberry

### **HYDROPHYLLACEAE – WATERLEAF FAMILY**

*Eucrypta chrysanthemifolia* – common eucrypta

*Phacelia* sp. – phacelia

*Phacelia parryi* – Parry's phacelia

### **LAMIACEAE – MINT FAMILY**

\* *Marrubium vulgare* – white horehound

*Salvia apiana* – white sage

*Salvia columbariae* – chia

*Salvia leucophylla* – purple sage

*Salvia mellifera* – black sage

*Stachys ajugoides* var. *rigida* – hillside hedge-nettle

*Trichostema lanceolatum* – vinegar weed

## Appendix A (Continued)

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### **MALVACEAE – MALLOW FAMILY**

*Malacothamnus fasciculatus* – chaparral bushmallow

### **NYCTAGINACEAE – FOUR O'CLOCK FAMILY**

*Mirabilis californica* – wishbone bush

### **ONAGRACEAE – EVENING-PRIMROSE FAMILY**

*Camissonia bistorta* – California sun cup

*Camissonia californica* – false-mustard

*Epilobium canum* ssp. *canum* – California fuchsia, zauchernia

### **PAPAVERACEAE – POPPY FAMILY**

*Ehrendoferia chrysanta* – golden ear-drops

### **PHRYMACEAE – HOPSEED FAMILY**

*Mimulus aurantiacus* – coast monkey flower, bush monkey flower

*Mimulus pilosus* – downy monkey flower

### **PLANTAGINACEAE – PLANTAIN FAMILY**

*Antirrhinum* sp. – snapdragon

*Keckiella antirrhinoides* var. *antirrhinoides* – yellow bush-penstemon

*Keckiella cordifolia* – climbing bush penstemon

*Plantago erecta* – dot-seed plantain

### **PLATANACEAE – SYCAMORE FAMILY**

*Platanus racemosa* – California sycamore

### **POLEMONIACEAE – PHLOX FAMILY**

*Eriastrum sapphirinum* – sapphire eriastrum

*Leptodactylon californicum* – prickly phlox

*Linanthus dianthiflorus* – farinose ground pink

### **POLYGONACEAE – BUCKWHEAT FAMILY**

*Chorizanthe procumbens* – prostrate spineflower

*Chorizanthe staticoides* – Turkish rugging

*Eriogonum elongatum* var. *elongatum* – tall buckwheat

*Eriogonum fasciculatum* var. *foliolosum* – California buckwheat

\* *Rumex crispus* – curly dock

### **PORTULACACEAE – PURSLANE FAMILY**

*Calandrinia ciliata* – red maids

*Claytonia perfoliata* var. *perfoliata* – miner's-lettuce

## Appendix A (Continued)

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### **PRIMULACEAE – PRIMROSE FAMILY**

- \* *Anagallis arvensis* – poor man’s weatherglass, scarlet pimpernel

### **RHAMNACEAE – BUCKTHORN FAMILY**

*Rhamnus ilicifolia* – holly-leaf redberry

### **ROSACEAE – ROSE FAMILY**

*Heteromeles arbutifolia* – toyon

*Rosa californica* – California rose

### **RUBIACEAE – MADDER FAMILY**

*Galium angustifolium* – narrow-leaved bedstraw

- \* *Galium aparine* – goose grass

### **SALICACEAE – WILLOW FAMILY**

*Populus fremontii* – Fremont cottonwood

*Salix gooddingii* – Goodding’s black willow

*Salix lasiolepis* – arroyo willow

### **SCROPHULARIACEAE – FIGWORT FAMILY**

*Castilleja affinis* ssp. *affinis* – coast paintbrush

*Scrophularia californica* var. *floribunda* – California figwort

### **SOLANACEAE – NIGHTSHADE FAMILY**

*Datura wrightii* – jimson weed

- \* *Nicotiana glauca* – tree tobacco

*Solanum douglasii* – Douglas’ nightshade

- \* *Solanum nigrum* – black nightshade

### **TAMARICACEAE – TAMARISK FAMILY**

- \* *Tamarix* sp. – tamarisk

### **URTICACEAE – NETTLE FAMILY**

*Urtica dioica* ssp. *holosericea* – hoary nettle

- \* *Urtica urens* – dwarf nettle

### **VERBENACEAE – VERVAIN FAMILY**

*Verbena lasiostachys* var. *lasiostachys* – western verbena

## **ANGIOSPERMAE (MONOCOTYLEDONES)**

### **CYPERACEAE – SEDGE FAMILY**

- \* *Cyperus involucratus* – African umbrella plant

## Appendix A (Continued)

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### **IRIDACEAE – IRIS FAMILY**

*Sisyrinchium bellum* – blue-eyed-grass

### **LILIACEAE – LILY FAMILY**

*Bloomeria crocea* – common goldenstar

*Calochortus catalinae* – Catalina mariposa lily

*Calochortus splendens* – splendid mariposa lily

*Calochortus weedii* var. *intermedius* – intermediate mariposa lily

*Chlorogalum pomeridianum* var. *pomeridianum* – wavy-leaved soap plant

*Dichelostemma capitatum* ssp. *capitatum* – blue dicks

*Nolina cismontana* – chaparral bear-grass

*Yucca whipplei* – our lord's candle

### **POACEAE – GRASS FAMILY**

*Achnatherum coronatum* – giant stipa

\* *Avena barbata* – slender wild oat

\* *Avena fatua* – wild oat

\* *Bromus diandrus* – ripgut brome

\* *Bromus hordeaceus* – soft brome

\* *Bromus madritensis* ssp. *rubens* – foxtail chess

\* *Cortaderia selloana* – pampas grass

\* *Hordeum murinum* ssp. *glaucum* – glaucous barley

\* *Lamarckia aurea* – golden-top

*Leymus condensatus* – giant wild rye

*Melica imperfecta* – coast range melic

*Muhlenbergia microsperma* – littleseed muhly

*Nassella lepida* – intermediate needlegrass

*Nassella pulchra* – purple needlegrass

\* *Schismus barbatus* – Old Han schismus

\* *Vulpia myuros* – rattail fescue

\* signifies introduced (non-native) species

## Appendix A (Continued)

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# APPENDIX B

## *Wildlife Species Observed on Site*





## **Appendix B**

### **Wildlife Species Observed on Site**

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#### **WILDLIFE SPECIES – VERTEBRATES**

##### **REPTILES**

###### **IGUANIDAE – IGUANID LIZARDS**

*Sceloporus occidentalis* – western fence lizard

*Uta stansburiana* – common side-blotched lizard

###### **COLUBRIDAE – COLUBRID SNAKES**

*Pituophis cantifer* – gopher snake

###### **VIPERIDAE – VIPERS**

*Crotalus oreganus* – western diamond-back rattlesnake

##### **BIRDS**

###### **ARDEIDAE – HERONS**

*Ardea herodias* – great blue heron

###### **ANATIDAE – WATERFOWL**

*Anas platyrhynchos* – mallard

###### **CATHARTIDAE – NEW WORLD VULTURES**

*Cathartes aura* – turkey vulture

###### **ACCIPITRIDAE – HAWKS**

*Accipiter cooperii* – Cooper's hawk

*Buteo jamaicensis* – red-tailed hawk

*Buteo lineatus* – red-shouldered hawk

*Elanus leucurus* – white-tailed kite

###### **FALCONIDAE – FALCONS**

*Falco sparverius* – American kestrel

###### **ODONTOPHORIDAE – NEW WORLD QUAIL**

*Callipepla californica* – California quail

###### **CHARADRIIDAE – PLOVERS**

*Charadrius vociferus* – killdeer

## Appendix B (Continued)

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### **COLUMBIDAE – PIGEONS AND DOVES**

*Zenaida macroura* – mourning dove

### **CUCULIDAE – CUCKOOS AND ROADRUNNERS**

*Geococcyx californianus* – greater roadrunner

### **TROCHILIDAE – HUMMINGBIRDS**

*Calypte anna* – Anna's hummingbird

### **PICIDAE – WOODPECKERS**

*Colaptes auratus* – northern flicker

*Picoides nuttallii* – Nuttall's woodpecker

### **TYRANNIDAE – TYRANT FLYCATCHERS**

*Sayornis nigricans* – black phoebe

*Tyrannus verticalis* – western kingbird

### **ALAUDIDAE – LARKS**

*Eremophila alpestris* – horned lark

### **CORVIDAE - JAYS AND CROWS**

*Apelocoma californica* – western scrub-jay

### **PARIDAE – TITMICE**

*Baeolophus inornatus* – oak titmouse

### **AEGITHALIDAE – BUSHTITS**

*Psaltirparus minimus* – bushtit

### **TROGLODYTIDAE – WRENS**

*Catherpes mexicanus* – canyon wren

*Salpinctes obsoletus* – rock wren

*Thryomanes bewickii* – Bewick's wren

### **REGULIDAE – KINGLETS**

*Regulus calendula* – ruby-crowned kinglet

### **POLIOPTILIDAE – GNATCATCHERS**

*Poliophtila caerulea* – blue-gray gnatcatcher

*Poliophtila californica* – California gnatcatcher

## Appendix B (Continued)

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### **TURDIDAE – THRUSHES AND BABBLERS**

*Sialia mexicana* – western bluebird

### **SYLVIIDAE – SYLVID WARBLERS**

*Chamaea fasciata* – wrentit

### **MIMIDAE – THRASHERS**

*Mimus polyglottos* – northern mockingbird

*Toxostoma redivivum* – California thrasher

### **LANIIDAE – SHRIKES**

*Lanius ludovicianus* – loggerhead shrike

### **PARULIDAE – WOOD WARBLERS**

*Dendroica coronata* – yellow-rumped warbler

### **EMBERIZIDAE – BUNTINGS AND SPARROWS**

*Melospiza melodia* – song sparrow

*Melospiza crissalis* – California towhee

*Pipilo maculatus* – spotted towhee

*Zonotrichia leucophrys* – white-crowned sparrow

### **ICTERIDAE – BLACKBIRDS AND ORIOLES**

*Agelaius phoeniceus* – red-winged blackbird

*Sturnella neglecta* – western meadowlark

### **FRINGILLIDAE – FINCHES**

*Carpodacus mexicanus* – house finch

*Spinus psaltria* – lesser goldfinch

### **PASSERIDAE – OLD WORLD SPARROWS**

\* *Passer domesticus* – house sparrow

## MAMMALS

### **DIDELPHIDAE – NEW WORLD OPOSSUMS**

\* *Didelphis virginiana* – Virginia opossum

### **LEPORIDAE – HARES AND RABBITS**

*Sylvilagus bachmani* – brush rabbit

## Appendix B (Continued)

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### ***SCIURIDAE* – SQUIRRELS**

*Spermophilus* sp. – ground squirrel

### ***GEOMYIDAE* – POCKET GOPHERS**

*Thomomys bottae* – Botta's pocket gopher

### ***MURIDAE* – RATS AND MICE**

*Neotoma* sp. – woodrat [middens]

### ***CANIDAE* – WOLVES AND FOXES**

*Canis latrans* – coyote

### ***PROCYONIDAE* – RACCOONS AND RELATIVES**

*Procyon lotor* – common raccoon

### ***FELIDAE* – CATS**

*Lynx rufus* – bobcat

### ***CERVIDAE* – DEERS**

*Odocoileus hemionus* – mule deer

## **WILDLIFE SPECIES – INVERTEBRATES**

### **BUTTERFLIES AND MOTHS**

#### ***PIERIDAE* – WHITES AND SULFURS**

*Pontia protodice* – checkered white

#### ***NYMPHALIDAE* – BRUSH-FOOTED BUTTERFLIES**

*Vanessa annabella* – west coast lady

*Vanessa cardui* – painted lady

\* signifies introduced (non-native) species

**CONCEPTUAL SOUTHERN CACTUS SCRUB  
REVEGETATION & MANAGEMENT PLAN  
for the  
PORTOLA CENTER PROJECT  
LAKE FOREST, CALIFORNIA**

*Prepared for:*

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**MAY 2012**





# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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## TABLE OF CONTENTS

<b><u>Section</u></b>	<b><u>Page No.</u></b>
<b>1.0 DESCRIPTION AND GOALS OF REVEGETATION PROGRAM.....</b>	<b>1</b>
<b>2.0 PROPOSED REVEGETATION PLANT COMMUNITY AND SPECIES COMPOSITION .....</b>	<b>1</b>
<b>3.0 REVEGETATION METHODS AND REQUIREMENTS.....</b>	<b>7</b>
3.1 Cactus Salvaging.....	7
3.1.1 Cactus Salvaging and Storage Methods.....	7
3.2 Topsoil Salvaging .....	9
3.3 Revegetation Area Grading/Preparation .....	10
3.4 Soil Testing .....	10
3.5 Erosion Control and Best Management Practices.....	10
3.6 Irrigation .....	11
3.7 Grow and Kill Program.....	12
3.8 Planting .....	12
3.9 Seeding.....	13
<b>4.0 MAINTENANCE AND MONITORING.....</b>	<b>14</b>
4.1 120-Day Plant Establishment, Maintenance, and Warrantee Period .....	14
4.2 Long-term Maintenance.....	15
4.3 Long-term Biological Monitoring.....	16
<b>5.0 SUCCESS CRITERIA.....</b>	<b>18</b>
<b>6.0 MANAGEMENT PLAN .....</b>	<b>19</b>
6.1 Conservation Mechanism.....	19
6.2 Funding Mechanism.....	19
6.3 Land Manager Qualifications .....	20
6.4 Biological Monitoring.....	20
6.5 Maintenance.....	21
<b>7.0 LITERATURE CITED AND REFERENCED .....</b>	<b>22</b>

# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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## TABLE OF CONTENTS (CONTINUED)

### Page No.

#### FIGURE

1	Conceptual Revegetation Plan .....	3
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#### LIST OF TABLES

1	Southern Cactus Scrub Revegetation Summary .....	1
2	Southern Cactus Scrub Container Plant Palette within FMZ Areas .....	2
3	Southern Cactus Scrub Seed Mix within FMZ Areas.....	5
4	Southern Cactus Scrub Plantable Wall Container Plant Palette within FMZ Areas.....	5
5	Southern Cactus Scrub Container Plant Palette within Dedicated Open Space Area (Non-FMZ Areas) .....	6
6	Southern Cactus Scrub Seed Mix within Dedicated Open Space Area (Non-FMZ Areas).....	6

#### APPENDIX

A	Property Assessment Record (PAR)	
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# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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## 1.0 DESCRIPTION AND GOALS OF REVEGETATION PROGRAM

The southern cacti scrub revegetation program outlined herein is designed to create or restore southern cacti scrub habitat in all suitable areas both on site and within the dedicated open space. The goal of the revegetation program is to create high-quality southern cactus scrub habitat suitable for cactus wren while meeting the Orange County Fire Authority's (OCFA) requirements for fire safety when within a fuel modification zone (FMZ). Approximately 20.33 acres of southern cactus scrub (SCS) will be created within FMZ areas. Of the 20.33 acres 16.05 acres will be on project slopes that adjoin natural open space areas and 4.29 acres will be located within dedicated open space areas, (Figure 1). In addition, approximately 5.50 acres of SCS will be created outside of FMZ areas. Of the 5.50 acres 5.2 acres is located in dedicated open space areas and 0.30 is located on the project slopes. A total of 25.83 acres of SCS habitat is proposed to be created or restored. Table 1 summarizes the total SCS revegetation acreage by area. The remaining SCS mitigation requirements will be satisfied by purchasing mitigation credits via the in-lieu fee program.

**Table 1**  
**Southern Cactus Scrub Revegetation Summary**

Revegetation Location	Revegetation Acreage
SCS Located within Fuel Modification Zone (FMZ) Areas	20.33
SCS Located Outside of FMZ Areas	5.50
<b>Total SCS Revegetation</b>	<b>25.83</b>

## 2.0 PROPOSED REVEGETATION PLANT COMMUNITY AND SPECIES COMPOSITION

Following a review of vegetation mapping, existing site conditions, the proposed site development plans, and meetings with the wildlife and fire agencies, it was determined that SCS would be the most appropriate vegetation community for the revegetation slopes within the FMZ areas. In addition, disturbed habitat and annual grasslands in the dedicated open space areas outside of the FMZ area have been identified and targeted for revegetation to SCS (Figure 1).

The proposed container plants and seed species are indicated in Tables 2–6. The proposed species composition and densities were based on the existing SCS vegetation, input from Dudek wildlife experts, and the project goals. Fire prone species such as black sage (*Salvia mellifera*) and California sagebrush (*Artemisia californica*) that can occur within SCS were not included in the FMZ plant palettes due to their increased flammability and inclusion on OCFA's prohibited plant list for FMZ areas. The plant palettes for the revegetation areas within the dedicated open space areas that are outside of the FMZ are more diverse as they are not restricted by the fire authority.

## Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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The native seed mix was designed with SCS habitat creation, wildfire risk reduction, erosion control, and weed suppression in mind. For this reason both low growing fire resistant perennial species and quick germinating, low growing annual species were selected.

The target vegetative cover for the shrub stratum is to provide approximately 60% cover by cactus species as shown in Table 2. The proposed seed mixes shown in Tables 4 and 6 are expected to provide approximately 50% cover in the herb/grass stratum the first 1–3 years. Herbaceous cover is then expected to decrease to approximately 30% as the native cacti grows and matures.

The source of cacti for the proposed revegetation areas will be from plants and pads salvaged from the project's development area, and possibly from other donor sites. If cacti are imported from off-site it must be from a local source and not from outside Orange County. Seeded species will have origins from cismontane Southern California. Any seed proposed for use on the project from outside the local region shall be pre-approved by the project biologist and U.S. Fish and Wildlife Service (FWS) in advance.

**Table 2**  
**Southern Cactus Scrub Container Plant Palette within FMZ Areas**

Botanical Name	Common Name	Approximate Percent Composition	Size	Approx Spacing (feet on center)
<i>Shrubs</i>				
<i>Opuntia littoralis</i>	coast prickly pear	50	1–3 pad segments	5–8
<i>Opuntia littoralis</i>	coast prickly pear	5	Large salvaged intact clumps with rootball	25–50
<i>Opuntia prolifera</i>	coastal cholla	5	Salvaged clumps	50
<i>Sambucus mexicana</i>	Mexican elderberry	15	1 gallon	20–30

\* Cacti rootballs will have several pads left attached for quick regrowth.





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**Conceptual Southern Cactus Scrub Revegetation & Management Plan  
for the Portola Center Project**

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# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

**Table 3**  
**Southern Cactus Scrub Seed Mix within FMZ Areas**

Botanical Name	Common Name	%P/%G	Lbs./Acre	Notes
<i>Eriophyllum confertiflorum</i> *	golden yarrow	30/60	4.0	10-inch-tall annual
<i>Eschscholzia californica</i> *	California poppy	98/75	5.0	4-inch-tall annual
<i>Gnaphalium californicum</i>	California everlasting	10/25	2.0	6-inch-tall annual
<i>Lupinus truncatus</i> *	collar lupine	98/80	4.0	4-inch-tall annual
<i>Plagiobothrys nothofulvus</i>	popcorn flower	TBD	2.0	3-inch-tall perennial
<i>Mimulus aurantiacus</i>	sticky monkey flower	5/70	2.0	16-inch-tall perennial
<i>Nassella lepida</i>	foothill needlegrass	70/60	1.0	12-inch-tall perennial bunchgrass
<i>Nassella pulchra</i>	purple needlegrass	70/60	1.0	12-inch-tall perennial bunchgrass
<i>Plantago insularis</i> *	wooly plantain	98/75	2.0	3-inch-tall annual
<i>Sisyrinchium bellum</i>	blue-eyed grass	95/75	4.0	5-inch-tall perennial

\* Indicates quick germinating annual nurse crop species for erosion control purposes. TBD indicates to be determined.  
Heights are approximate and may vary with weather, soil moisture, exposure, and nutrients.

**Table 4**  
**Southern Cactus Scrub Plantable Wall Container Plant Palette within FMZ Areas**

Botanical Name	Common Name	Approximate Percent Composition	Container Size	Approx Spacing (feet on center)
<i>Baccharis pilularis</i>	coyote brush	10	1 gallon	6
<i>Cneoridium dumosum</i>	bushrue	15	1 gallon	5
<i>Encelia californica</i>	coast sunflower	15	1 gallon	4
<i>Isocoma menziesii</i>	Coastal goldenbush	10	1 gallon	4
<i>Isomeris arborea</i>	bladderpod	5	1 gallon	4
<i>Keckiella cordifolia</i>	keckiella	5	1 gallon	6
<i>Mimulus aurantiacus</i>	sticky monkey flower	15	1 gallon	3
<i>Nassella lepida</i>	foothill needlegrass	15	1 gallon	2
<i>Solanum xanthii</i>	nightshade	5	1 gallon	2
<i>Yucca whipplei</i>	our lord's candle	5	1 gallon	3

**Notes:**

1. Container sizes may vary between 4-inch pots and 5 gallon; however, a majority will be one-gallon size.
2. Every species shown on the above list will not necessarily be included in the final plant layout.
3. In general, species will be planted in groups of 5–25 individuals that results in a patchwork habitat mosaic.
4. Any species proposed to be added or substituted shall be pre-approved by the project biologist and FWS.
5. The final planting plans/layout will be prepared by a qualified habitat restoration specialist. Some species will only be included on north and east facing walls while others may only be planted on south and west facing walls, as appropriate.
6. Percent composition will vary by slope aspect/exposure.
7. Walls shall be seeded with the seed mix for Southern Cactus Scrub for FMZ Areas.

# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

**Table 5**  
**Southern Cactus Scrub Container Plant Palette within Dedicated Open Space Area**  
**(Non-FMZ Areas)**

Botanical Name	Common Name	Approximate Percent Composition	Container Size	Approx Spacing (feet on center)
<i>Shrubs</i>				
<i>Heteromeles arbutifolia</i>	toyon	5	1 gallon	40
<i>Opuntia littoralis</i>	coast prickly pear	5	Large salvaged intact clumps with rootball	25–50
<i>Opuntia littoralis</i>	coast prickly pear	50	1–3 pad segments	5–8
<i>Opuntia prolifera</i>	coastal cholla	5	1–3 segments	50
<i>Rhus integrifolia</i>	Lemonadeberry	5	1 gallon	40
<i>Sambucus Mexicana</i>	Mexican elderberry	10	1 gallon	20–30

**Table 6**  
**Southern Cactus Scrub Seed Mix within Dedicated Open Space Area (Non-FMZ Areas)**

Botanical Name	Common Name	%P/%G	Lbs./Acre	Notes
<i>Artemisia californica</i>	California sagebrush	15/50	3.0	3-foot-tall perennial
<i>Eriogonum fasciculatum</i>	flat-topped buckwheat	10/65	4.0	2.5-foot-tall perennial
<i>Eriophyllum confertiflorum</i> *	golden yarrow	30/60	2.0	10-inch-tall annual
<i>Eschscholzia californica</i> *	California poppy	98/75	4.0	6-inch-tall annual
<i>Lotus scoparius</i>	deerweed	90/60	2.0	18" tall biennial
<i>Lupinus truncatus</i>	collar lupine	90/70	2.0	4-inch-tall annual
<i>Mimulus aurantiacus</i>	sticky monkey flower	5/70	2.0	18-inch-tall perennial
<i>Nassella lepida</i>	foothill needlegrass	70/60	1.0	12-inch-tall perennial bunchgrass
<i>Nassella pulchra</i>	purple needlegrass	70/60	1.0	12-inch-tall perennial bunchgrass
<i>Plagiobothrys nothofulvus</i>	popcorn flower	TBD	1.0	3-inch-tall perennial
<i>Plantago insularis</i> *	wooly plantain	98/75	2.0	3-inch-tall annual
<i>Salvia apiana</i>	White sage	70/50	2.0	36" tall shrub
<i>Salvia mellifera</i>	black sage	70/50	3.0	48" tall shrub

\* Indicates quick germinating annual nurse crop species for erosion control purposes. TBD indicates to be determined.  
Heights are approximate and may vary with weather, soil moisture, exposure, and nutrients.

# **Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project**

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## **3.0 REVEGETATION METHODS AND REQUIREMENTS**

This section describes the methods and requirements that will be utilized to help ensure the southern cactus scrub revegetation effort is successful. This section is laid out approximately in chronological order.

The revegetation work outlined herein will be monitored by a qualified biologist/habitat restoration specialist. The contractor selected to perform revegetation work and maintenance will have a valid California contractor's license Class C-27, be experienced in upland habitat restoration in southern California, and be able to readily differentiate native plants and common weeds.

### **3.1 Cactus Salvaging**

Cactus will be salvaged from the development areas prior to site clearing and grubbing for later incorporation into the revegetation areas. Cactus to be salvaged will be marked in the field by the project biologist. Cactus will be flagged to indicate the aspect the pads were facing and the aspect of the slope from which it was salvaged. Salvaging work will avoid the cactus wren nesting season (March 1–July 15). If the nesting season is unavoidable a qualified wildlife biologist will conduct a bird survey 24–48 hours prior to salvaging work to determine if nests are present. If nests are present the area shall be avoided. If nest are not present work may commence.

Cactus will be salvaged in sufficient quantities to meet the plant spacing and composition outlined in Section 2.0. The project biologist will work directly with the contractor during salvaging work. The revegetation areas within the dedicated open space areas will be prepped for planting as outlined herein prior to cactus salvaging work so that they may be directly transplanted.

Because there will be lag time between the time the cacti are salvaged and when the revegetation areas within graded/FMZ areas are completed it will be necessary to store salvaged cactus on site. The cacti storage area will be selected by the project biologist in consultation with the owner. The storage area will be protected from rabbits, snails, and ponding water. If sufficient quantities of cacti are not available on site the difference will either be obtained from a suitable donor site in Orange, County, or contract grown/purchased from a southern California native plant nursery. If cacti are imported from off-site or purchased from a nursery it must be from a local source and not from outside Orange County.

#### **3.1.1 Cactus Salvaging and Storage Methods**

Collection of unrooted cacti stem segments ("pads") includes individual pads and stem sections (i.e., 2–3 pad sections). Segments will be manually separated from host plants with bladed tools and transferred directly to the temporary on-site storage area approved by the project biologist. If there is not adequate space on site the cacti can alternatively be delivered to a qualified native plant nursery for temporary storage.

## Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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Salvaged individual pads and multi-segment (2–3) pad branches shall be allowed to callus for a 2–3 week time period prior to planting. Following callusing cacti pads and pad segments shall be set in a pre-dug trench set on contour at the storage location. Trench depth shall be 3–4 inches deep and 2–4 inches wide. Cacti pads will be set plumb in the trench with the bottom pad set approximately a quarter the way into the soil. Pads shall be planted in the same solar aspect that they were growing onsite. Pads will be promptly backfilled with native soil free of rocks and debris and tamped well. Multi-pad (taller) sections may require staking. Cacti shall be watered in upon transplanting. Cacti shall be watered while stored onsite as directed by a qualified biologist. The qualified biologist shall closely monitor transplanting work.

Harvested cactus patches shall be cut such that there are several pads left on the rootball. Existing cacti rootballs shall then be salvaged and transplanted in the designated storage area. Rootballs shall be carefully excavated from the soil with an excavator. The root ball and soil shall be kept intact for transport to the storage area. Cacti roots shall be covered with wetted burlap upon excavation and during transport to the storage area. Rootballs shall be promptly planted in a pre-dug pit upon delivery to the storage location and watered in. The rootballs shall be set even with the surrounding grade or slightly (0.5–1”) above grade. A watering berm measuring 6” high shall be provided around each transplanted rootball.

In addition, several existing large cactus patches within the development footprint area will be selected in the field by the project biologist and carefully transplanted to the revegetation areas within the dedicated open space areas and to the on-site cactus storage area. Large patches shall be structurally stabilized with PVC pipe, 2 by 4s, cones, and rope prior to excavation and relocation to ensure that the structure remains in-tact during transplanting. The project biologist shall closely monitor all cactus relocation work. The contractor must move at slow speeds such that the salvaged cactus stands remain in-tact during the relocation and transplanting process. Holes shall be pre-dug at the receptor sites prior to moving the cactus. A large diameter tree spade may work best, especially when the soil is moist from precipitation. The transplanted cactus rootballs shall be set in the pre-dug holes such that they are at grade or 0.5 to 1 inch above the surrounding grade. Native soil shall be used for the backfill mix. Backfill mix shall be tamped well and watered in immediately.

In summary, salvaged cacti will fall into the following categories:

1. Individual pads
2. 2–3 pad segments (branches)

## Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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3. Root balls with pads: Rootball with pads left extending between 6 inches and 18 inches in height. (Approximately 80% of the pads will be harvested as single and multi-segment (2–3 pad) branches)
4. Large clumps: Existing stands of cactus to be salvaged roots and all. Structure to be reinforced and retained during transplanting.

During storage on site, a qualified biologist will periodically review the cacti to ensure they are healthy and free of pests, herbivory, and diseases. Any problems will be remedied to ensure sufficient cacti are available for transplanting.

### 3.2 Topsoil Salvaging

Because the proposed FMZ revegetation areas occur on manufactured fill slopes it is unknown if the upper soil layer on the slopes following grading will be suitable for healthy native plant growth. Manufactured slopes often result in subsoil on or near the surface that is not conducive to native seed germination or plant growth. The most common problems typically associated with fill/graded area soil include elevated pH and salinity levels. While it is usually possible to correct soil chemistry, salinity, and nutrient problems with the addition of well composted organic mulch, amendments, and leaching with potable irrigation water, it is generally easier and more effective to salvage the native topsoil and use it to create the finished grades of the revegetation areas.

Topsoil is proposed to be salvaged from the development area in quantities sufficient to place a six to ten inch deep topsoil layer on all the revegetation area slopes. Based on the revegetation acreage this will require the salvaging of approximately 30,000 cubic yards of topsoil. Topsoil salvaging will help ensure the success criteria are met by providing soil that is suitable for native plant growth.

Topsoil will be stockpiled separately on site, contained via silt fence and clearly marked as “Revegetation Topsoil.” “Revegetation Topsoil” will be painted on containment silt fence in large letters. The goal of topsoil salvage is to ensure the proper soil texture, pH, and nutrients are available for native plant growth, and eliminate the need for expensive soil amending, fertilizing and leaching prior to planting.

Revegetation areas within the dedicated opens space areas will remain in their natural state. Areas of dense monotypic non-native annual grasses within the open space areas slated for revegetation may be lightly bladed with a bulldozer to a depth of 2–3 inches in order to remove the dense weedy grasses and weed seed bank prior to revegetation. This will result in a much lower weed removal effort needed post-planting.



# **Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project**

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## **3.3 Revegetation Area Grading/Preparation**

Revegetation slopes will be contour graded at a gradient of approximately 2:1 (run:rise). The salvaged topsoil will be placed as the slope topsoil and used to create the finished grade of the revegetation slopes. The topsoil depth will be 6–10 inches and will be track walked with a bull dozer up and down slope. Care will be taken not to compact the topsoil beyond 75% to allow for healthy seed germination and plant growth. Tracking will also help prevent erosion during seedling and plant establishment. Because the upper 6–10 inches will be salvaged topsoil amending (i.e., roto-tilling), disking, or otherwise blending in of supplemental amendments is not anticipated.

## **3.4 Soil Testing**

Following final slope grading the soil will be tested for native plant growth suitability. Soil samples will be taken approximately 50 yards apart. Final soil testing locations will be indicated by the project biologist. Soil testing will be performed by a reputable soil testing laboratory pre-approved by the project biologist. Soil test results will be submitted to the project biologist for review prior to installing the irrigation system or plants. If the soil tests results indicate amending is necessary (i.e., insufficient topsoil was available, stockpiled, or it was accidentally mixed with subsoil) amending will be performed per the soil laboratory's recommendations in consultation with the project biologist. Amendments will be thoroughly incorporated and blended in the soil to a depth of 8–10 inches. Soil within non-graded open space areas do not require testing unless evidence of soil disturbance or soil problems is evident.

## **3.5 Erosion Control and Best Management Practices**

Revegetation slopes will be track walked by the grading contractor and planted and hydroseeded promptly upon completion of grading. Revegetation areas that do not have 50% combined (cactus/shrub and seed) cover prior to the onset of the rainy season (i.e., October 15) will have additional erosion control devices implemented to prevent rills, gullies and associated sedimentation from occurring. Silt fence or burlap gravel bags will be installed at the toe of slopes to prevent sediment from entering into adjacent areas. Silt fencing will be trenched six inches into the grade, staked securely, and ends overlapped 6 inches. Intermediate erosion control devices will be installed on the slopes as necessary to prevent rills and may include silt fence, small (i.e., 6–8 inches tall) earthen waterbars, rock filled burlap gravel bags, or 6-inch diameter by 3-foot-long fabric gravel/sand bags, or similar best management practices (BMPs) that help prevent erosion of the slope faces.

## **Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project**

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Other suitable BMPs outlined in the project Stormwater Pollution Prevention Plan (SWPPP) or recommended by the Qualified SWPPP Practitioner (QSP) may also be used. The specific location and spacing of erosion and sediment control (BMP) devices will be included on the erosion control plans found in the SWPPP binder pockets. Straw wattles and erosion control fabrics that have nylon webbing shall not be used as they have the tendency to entrap reptiles, birds and other animals. Furthermore, straw wattles are a constant source of problematic weeds which can infest revegetation areas and cause maintenance problems. The “certified weed free” wattles are only certified to be free of U.S. Department of Agriculture listed “noxious” weeds and often times contain weeds problematic to natural land areas and land managers. Straw wattles, hay bales and straw bales shall be avoided.

### **3.6 Irrigation**

Revegetation areas will be irrigated with a permanent below grade irrigation system to establish native container plants and seed. Revegetation areas within the dedicated open space may or may not be irrigated. If the non-irrigated option is chosen for the open space areas the cactus will be transplanted during the late fall to early winter period, or will be watered by hand 2-3 times per month following transplanting, as directed by the project biologist. Watering non-irrigated cacti will continue until seasonal rains begin.

The irrigation system will be part of the overall development area landscape irrigation system and installed following approval of slope grading, soil testing, and soil amending (if needed). The revegetation area irrigation system will use potable water and be operated via an automatic controller. A master valve, flow control sensor, and rain sensor will be included. Check valves will be installed on sloped areas as necessary to prevent low-head drainage and rill/rut formation. Appropriate backflow device(s) will be installed to prevent contamination of potable water. Irrigation systems will be designed by a licensed landscape architect.

The irrigation system will be programmed in consultation with the project biologist and programmed to establish native plants and seed while avoiding erosion. Therefore, a controller with multiple start times for each valve will be used. Sprinkler coverage will be head to head and the radii will be no larger than forty feet. Low precipitation rate heads will be utilized to prevent slope erosion. The irrigation system will be tapered-off by the end of year three. During abnormally hot or dry (drought) years the irrigation system may be operated infrequently within the FMZ areas (i.e., 2 times/month) to keep the plants hydrated and less likely to ignition during a Santa Ana condition.

# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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## 3.7 Grow and Kill Program

In order to ensure project success and minimize the amount of manual weeding labor needed, a grow-and-kill program will be performed as described below.

Following installation of the irrigation system and approval by the project biologist, the revegetation slopes shall be irrigated for twenty-eight (28) continuous days in order to germinate weed seeds present in the topsoil. Irrigation will be carefully timed and monitored by the contractor to avoid slope erosion. After twenty-eight (28) days the site will be reviewed by the project biologist and contractor. If it is determined that germination has been adequate, all germinating weeds shall be string trimmed to grade or sprayed with the appropriate herbicide. If it is determined that germination has not been adequate, the irrigation regime will continue for an additional twenty one (28) days and then re-treated.

Seven to ten days after the germinating weeds are sprayed the site shall be reviewed by the project biologist and contractor. If weed kill has been effective (i.e., at least 95% kill) the dead weeds shall be cleared and removed from the site. If the project biologist determines weed kill has not been effective, the remaining weeds shall be treated with herbicide until 95% or greater kill is achieved. Once the grow and kill program is adequately completed, as determined by the biologist, planting and seeding activities will commence.

## 3.8 Planting

A landscape architect/habitat restoration specialist familiar with local plant taxa and experienced in native plant restoration will prepare final revegetation slope planting plans, legends, and details. Planting plans will be prepared at a scale of either 1 inch = 20 feet, or 1 inch = 40 feet.

Revegetation areas will be planted and seeded with the species shown on Tables 2 through 6.. Rooted Cacti and salvaged stands from the on-site cacti storage area will be planted at the approximate distances shown in Tables 2 through 6. Straight line, even spacing, or “cornrow” planting will be avoided. The planting layout shall look natural. Cactus shall be planted in the same orientation from that which they were salvaged.

Container plants will be inspected by the project biologist periodically during storage/propagation for potentially problematic pests, disease, and weeds. The project biologist will verify that the proper size and species of plants have been provided prior to installation. Any plants not appearing healthy or that are the wrong species will be rejected by the project biologist. Container plants shall be free of weeds and pests at the time of delivery. Container plants that have weeds or pests present will be rejected by the project biologist. Final container plant locations shall be pre-approved by the project biologist prior to excavating planting pits. Planting backfill mix will not be needed due

## **Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project**

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to soil salvaging (and, or amending). Container planting holes shall be pre-soaked 24 hours prior to planting and shall be watered in thoroughly with a hose immediately after planting. Plants shall be installed per the detailed drawings shown on the final construction plans.

The installation contractor shall guarantee all container plants for 120 days following the approved installation. All dead or ailing container plants shall be replaced by the contractor prior to the end of the 120-day plant establishment and warrantee period.

It is recommended that planting and seeding be avoided during the hot summer months to the extent feasible. Avoiding summertime planting will help minimize transplant shock and plant mortality, and maximize seed germination and establishment. The slopes will be irrigated, so planting and seeding can be accomplished at anytime of the year if necessary. Best results however, are typically obtained when planting and seeding occur in fall or early spring. Container plants and seed should be ordered/contract grown 9–12 months in advance of the scheduled planting date to ensure availability.

### **3.9 Seeding**

The revegetation areas will be hydroseeded with the seed mix indicated in Tables 4 and 6. Hydroseeding will occur promptly after planting is completed and approved by the project biologist. Any weeds or erosion features present shall be removed prior to hydroseeding. Soil shall be wetted 12 hours prior to hydroseeding. Hydroseeding shall be applied evenly and in a constantly agitated homogenous mix. The project biologist shall be notified 48 hours in advance of hydroseeding and shall be on site during hydroseeding activities. Seed bag certificates and hydroseed slurry material invoices shall be supplied to the project biologist and owner prior to seeding.

Hydroseed shall be applied with the following slurry mix:

- Seed mix as indicated herein
- Virgin wood fiber mulch @ 2,500 Lbs./Acre
- Ecology Control M-Binder (or approved equal) @ 100 Lbs. Acre
- Green marker dye.

Hydroseed slurry shall be washed from all container plants, sidewalks, fences and other improvements following hydroseeding. Irrigation shall be scheduled to germinate and establish hydroseeding.

# **Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project**

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## **4.0 MAINTENANCE AND MONITORING**

Maintenance and monitoring will be performed for three years or until the success criteria are met and include regularly scheduled maintenance and monitoring visits as described herein. The impetus of maintenance and monitoring is to ensure that the success criteria indicated in Section 5 are achieved in a timely manner. Following achievement of the success criteria the revegetation areas will be managed in-perpetuity as outlined in Section 6, Management Plan.

### **4.1 120-Day Plant Establishment, Maintenance, and Warrantee Period**

Immediately following written approval of planting and seeding work by the owner in consultation with the project biologist, the contractor shall begin the post-installation 120-day plant establishment, maintenance and warrantee period. Maintenance work described herein and replacement planting will be performed monthly (minimum) during this period.

The installation contractor shall guarantee all plant materials to remain in a healthy condition during the 120-day plant establishment, maintenance and warrantee period. All dead or ailing plant materials shall be replaced in-kind and in-size by the installation contractor at his/her expense. The installation contractor shall guarantee native seed germination to provide at least 35% vegetative cover at 120 days after seeding. If this minimum cover is not met all portions of the slopes not meeting this requirement will be reseeded as directed by the project biologist.

The contractor shall maintain the irrigation system in proper working order and adjust all sprinkler arcs and radii as necessary to provide proper coverage and avoid overspray onto paved surfaces. The contractor shall consult with the project biologist and adjust the irrigation controller program to apply water in sufficient quantities to establish the container plantings and hydroseeding.

The contractor shall remove all weeds from the site at least monthly. Weed removal shall be performed using hand tools to avoid damage to germinating native seedlings and container plants. Herbicides and string trimmers are not to be used to control weeds after planting and seeding unless pre-approved in writing by the project biologist in consultation with the project owner.

Any plant disease, insect infestations, or herbivory shall be remedied by the contractor in consultation with the project biologist and project owner. Herbivory by rabbits and deer shall be monitored. If it is determined that protective plant cages or other protective measures are necessary, the project proponent will coordinate with the project biologist and contractor to find the most efficient and economical solution.

# **Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project**

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Trash and debris shall be removed from the slopes regularly during the 120-day plant establishment and warrantee period.

Techniques that encourage vertical growth and structural complexity of cactus scrub shall be employed to make the habitat more attractive to cactus wrens. These techniques include pruning cactus as directed by the project biologist to encourage vertical growth, supporting growing cactus with stakes to encourage vertical growth.

The contractor shall meet the project biologist on site monthly during the 120-day plant establishment and warrantee period. Irrigation repairs shall be performed within 48 hours of notice of defect. The contractor shall conduct a final walk through with the project proponent and project biologist at the end of the 120-day plant establishment, maintenance and warrantee period. If the aforementioned representatives determine that the site has been adequately maintained, seed germination has met the required criteria, and all dead or ailing plant materials have been replaced, the project owner will notify the contractor of final acceptance in writing. A copy of the acceptance letter will be sent to the FWS, NROC, and City representative. Failure of the contractor to perform the work outlined in this section will result in the extension of the 120-day plant establishment and warrantee period at no cost to the owner.

## **4.2 Long-term Maintenance**

Long-term maintenance will be performed until the success criteria in Section 5.0 of this report are met (estimated to be 3 years from revegetation installation). Long-term maintenance will commence upon approval of revegetation installation work.

Maintenance work will be performed as follows:

- Monthly for first 4 months.
- Quarterly (every 3 months) from four months until success criteria are met.

Maintenance work shall include the following during each site visit:

- Removal of all weeds from the revegetation areas.
- Maintaining irrigation system in proper working order.
- Programming the irrigation controller seasonally.
- Controlling pests and disease.
- Removing trash and debris.
- Replacing dead plants each fall.



## **Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project**

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Maintenance work will include maintaining the irrigation system in proper working order which includes, but is not limited to the following: Repairing broken, malfunctioning, or damaged components within 48 hour of discovery. Adjusting all sprinkler arcs and radii as necessary to provide proper sprinkler coverage and minimize overspray. The maintenance foreman shall consult with the project biologist and adjust the irrigation controller program seasonally (or more) so that water is supplied in sufficient quantities to establish and naturalize the native container plants and hydroseeding. All irrigation shall be ceased by the end of year three unless directed otherwise by the project biologist.

Weed removal shall be performed using hand tools only to avoid damage to native seedlings and container plants. Mechanized string trimmers may be used if pre-approved by the project biologist. Herbicides are not to be used to control weeds during long-term maintenance unless pre-approved in writing by the project biologist. All weed debris and slash shall be removed from the site the same day it is cut.

Plant disease and insect infestations shall be remedied by the contractor in consultation with the project biologist. Integrated Pest Management techniques approved by the project biologist are to be utilized to control pests. Trash and debris shall be removed from the revegetation areas during each maintenance visit and disposed of properly.

Techniques that encourage vertical growth and structural complexity of cactus scrub shall be employed to make the habitat more attractive for cactus wrens. These techniques include pruning cactus as directed by the project biologist to encourage vertical growth, supporting growing cactus with stakes and or cylinders as needed to encourage vertical growth.

The contractor shall meet the project biologist on site at least twice per year to review the project and weeding activities.

### **4.3 Long-term Biological Monitoring**

Monitoring of the revegetation areas has a two main purposes: (1) To monitor the progress of revegetation project by comparing quantitative measures (data collection), including plant density, percent coverage, mortality and species diversity, with the performance standards; and (2) to direct maintenance personnel and determine appropriate remedial actions that will help ensure the project meets the success criteria on time. All monitoring, including quantitative and qualitative assessments shall be performed by a qualified biologist/habitat restoration specialist.

Monitoring work is to be performed as follows:

- Monthly for first 4 months
- Quarterly (every 3 months) from month four to the end of year three.

## Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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Thirty- to fifty-meter-long permanent transects will be established in the revegetation areas at representative locations. Transects will be used to determine compliance and achievement of the revegetation success standards indicated in Section 5. Quantitative transect data will be collected each spring using the point-intercept method and presented in tabular format. Once the vegetation has become established enough to provide nesting habitat the data collection will be performed in late summer following conclusion of the migratory bird nesting season. Vegetative cover will be presented using absolute cover values. Monitoring will include an average of shrub heights based on a random sample of the dominant perennial shrub species. Spring monitoring in year two will determine the need to continue the temporary irrigation. Summer monitoring (qualitative) will include a tally of dead container plants.

Permanent photo-documentation stations will be established along each transect to record the progress of the revegetation program and plant establishment over the 5-year period. Other representative photographs will be taken from established vantage points to show the overall development of the revegetation areas.

Spring monitoring will include both qualitative and quantitative data collection. Qualitative monitoring will be performed during the summer, fall, and winter quarters. Qualitative and quantitative monitoring is described in detail below.

Qualitative monitoring will include the following:

- Overall assessment of container plant and seedling establishment.
- Assessment of container plant health including reviewing for pests and disease.
- Provide recommendations for pest control as necessary to help ensure plant survival.
- Assessment of weeds and recommendations for weed control.
- Assessment of soil moisture and plant stress. Provide seasonal recommendations for irrigation programming. Focus will be placed on adapting the plants to natural rainfall cycles.
- Review of erosion control and make recommendations if needed.
- Summer monitoring shall include dead plant count and recommendations for fall replacement planting as necessary to achieve success criteria.
- Summary monitoring reports shall be submitted following each monitoring visit and include recommendations that will help ensure achievement of success criteria.

Quantitative monitoring shall include the following:

- Quantitative data collections from permanent transect points, as indicated herein.

## Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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- Photographs of each transect (permanent photo-documentation point).
- Photographs of revegetation areas from representative points.
- Preparing transect data tables showing percent cover for each species and average shrub heights (woody perennial species only).
- Summary quantitative (spring) biological monitoring report with transect data tables, assessment of transect data, and color photos/ reproductions will be submitted following each spring monitoring visit.

### 5.0 SUCCESS CRITERIA

The following performance standards shall be achieved at the end of each year following planting. Performance standards are viewed as interim project objectives designed to achieve the final revegetation goal. If revegetation efforts fail to meet performance standards in any one year, the biological monitor/habitat restoration specialist will recommend remedial actions to the project proponent and maintenance contractor that will help enhance the project to a level of conformance.

#### First Year Performance Standards:

- 90% survival of all container planted species
- 40% total coverage of container planted shrub and seeded species combined
- 20% cactus cover
- 20% cover (maximum) by weed species
- Average combined shrub height of 12 inches
- No invasive exotic species such as pampas grass or artichoke thistle shall be present.

#### Second Year Performance Standards:

- 90% survival of all container planted species
- 60% total coverage of container planted shrub and seeded species combined
- 40% cactus cover
- 15% cover (maximum) by weed species
- Average combined shrub height of 18 inches
- No invasive exotic species such as pampas or artichoke thistle shall be present.

# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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## Third Year Performance Standards:

- 90% survival of all container planted species
- 80% total coverage of container planted shrub and seeded species combined
- 60% cactus cover
- 10% cover (maximum) by weed species
- Average combined shrub height of 24 inches
- No invasive exotic species such as pampas grass or artichoke thistle.

## 6.0 MANAGEMENT PLAN

Upon completion of the initial 3 years of maintenance and monitoring and achievement of the success criteria outlined in Section 5 the revegetation areas will be managed in perpetuity by a qualified land manager.

### 6.1 Conservation Mechanism

All of the non-Reserve revegetation areas shown on Figure 1 will be protected in-place via recordation of a permanent conservation easement or deed restriction. The protection mechanism shall be adequate to demonstrate that the non-Reserve revegetation areas will be protected in-place in perpetuity without future development or encroachment. The conservation easement, deed restriction, or other appropriate legal document shall prohibit all residential, commercial, industrial, institutional, and transportation development, and any other infrastructure development that would not maintain or enhance the natural functions and values of the Revegetation areas. Utility lines, sewer lines, drainage lines, access roads, passive or active recreation areas shall not be allowed in revegetation areas. Portola shall submit a draft copy of the proposed protection mechanism for review and approval within six months of issuance of the grading permit. The conservation mechanism shall be approved, finalized and recorded within one year of issuance of the grading permit.

### 6.2 Funding Mechanism

Long term management of the non-Reserve revegetation areas will require funding as determined by the Property Assessment Record (PAR), (Appendix A). Portola shall provide the necessary non-wasting endowment upon completion of the second year of revegetation following installation. This will allow the endowment to accumulate operating funds a year prior to transference of maintenance and monitoring responsibilities from Portola to the approved land management entity. Portola will provide installation, maintenance and monitoring for the first three years, or until the success criteria outlined herein are met. Upon achieving the success criteria the approved land management entity will take over maintenance and monitoring responsibilities.

# Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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## 6.3 Land Manager Qualifications

The land manager will be responsible for implementation of the management plan and shall be pre-approved by the FWS, NROC and City. The land management entity shall have qualified biologist/restoration ecologist and wildlife biologists on staff and be familiar with the biology and ecology of Southern California plant communities. The land manager shall have experience performing natural lands management on several other sites in southern California.

The land manager will have the authority to modify the management plan based upon a strategy of Adaptive Management. Adaptive Management is defined as the ongoing evaluation of biological management techniques in light of monitoring results and other new information. These periodic evaluations are used over time to adapt both the management objectives and techniques to better achieve overall resource management goals. The land manager will consult with NROC, FWS and City prior to implementing adaptive management changes.

## 6.4 Biological Monitoring

The revegetation areas shall be reviewed in their entirety by the land manager and fuel modification zone (FMZ) specialist twice a year. Monitoring will include a site review during the warm season and another during the cool season. During each monitoring event field mapping will be performed that identifies exotic and weed species locations and approximate densities within the revegetation areas. The impetus of monitoring will be to identify weeds and exotic species within the revegetation and FMZ areas and recommend Integrated Pest Management (IPM) control/removal measures. Weeds and invasive exotic species shall be adequately controlled in order to maintain high quality native habitat that is less prone to ignition. Every third year a reconnaissance level wildlife survey shall be performed during the warm season to inventory wildlife species present on, or that traverse through the site.

Biannual monitoring reports shall be submitted to NROC, FWS and the City and include 11" x 17" field maps of the revegetation areas. Monitoring reports shall include a summary of overall site conditions including estimated percent native cover, percent weed/exotic cover, average vegetative height, and an assessment of the overall health and condition of the habitat. Reports shall outline how and when weeds, exotic species, pests, herbivores, trash, trespassing, erosion, and other pertinent management items will be, or have been addressed. Reports shall include photos from ten permanent photo-documentation points that capture an overview of the revegetation areas.

## Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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Within the FMZ areas the FMZ specialist will ensure that plants indicated on the OCFA prohibited list are being removed on an annual basis. If the understory becomes too dense with vegetation over time the FMZ specialist may recommend selected thinning to comply with OCFA regulations. Cactus shall not be thinned. Thinning work and plant removal work shall occur outside of the cactus wren nesting season and be monitored by the FMZ specialist and land manager.

In summary, each monitoring report shall include the following:

1. Estimate of percent native cover, indicating dominate species.
2. Estimate of percent weed and exotic cover.
3. Estimated average vegetation height.
4. Presence of pests including insects and herbivores and relative threat to habitat.
5. The need for vegetation thinning or removal (OCFA prohibited species).
6. Trash accumulation, including any illegally dumped materials.
7. Trespassing issues, damage, or trail development.
8. Status of project related fencing, gates, and signage.
9. Erosion issues or required maintenance of drainage features.
10. Color 11" × 17" revegetation area maps showing locations and densities of weeds and exotic species, estimated percent native cover, and other pertinent data as appropriate including but not limited to: trespassing areas, trash accumulation areas, herbivore damage, vandalism, erosion, and damaged fencing/signs.
11. Ten representative photographs from permanent photo points.
12. A summary of what corrective actions are proposed to be taken and when they will be implemented.
13. A list of wildlife species present (every third year).

### 6.5 Maintenance

Maintenance work will be conducted twice a year at approximately six month intervals, or as needed to obtain the goals outlined herein. Maintenance will focus on the timely control/removal of non-native weeds, exotic species, and removing OCFA prohibited species within the FMZ areas. Weeding other than use of a backpack sprayer or hand removal of herbaceous weeds shall avoid the Migratory Bird Nesting Season to the maximum extent practicable. If mechanized weeding (i.e., string trimming, chainsaws, mowing or similar) must be performed during the



## Conceptual Southern Cactus Scrub Revegetation & Management Plan for the Portola Center Project

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Migratory Bird Nesting Season a qualified wildlife biologist shall verify that nesting birds are not present in the prosed weeding area 24–48 hours prior to initiating work. If nests are present weeding work shall be postponed. Exotic trees and shrubs shall be controlled/felled outside of the nesting season. The goal is to control a majority of weeds and exotic species before they set seed and to avoid damage to native wildlife species. Integrated Pest Management (IPM) measures will be utilized.

Other biannual maintenance work in the revegetation areas will include performing the following tasks: Removing accumulated trash and illegally dumped materials, repairing damages to revegetation area fencing, signage, gates, and locks, controlling plant pest and disease when/if they reach critical levels, repairing erosion rills/ruts, programming and maintaining the irrigation system within FMZ areas, and maintaining drainage features including concrete v-ditches and drain inlets.

If substantial areas of southern cactus scrub in the FMZ are degraded or destroyed as a result of fire or other “natural” disturbance, the affected habitat will be restored using the methods described in Sections 2 and 3 of this plan. Post fire revegetation shall focus on weed and erosion control. Weed and erosion control work will be performed that ensures the habitat successfully recovers and meets the original success criteria within 5 years. If the success criteria are not met within 5 years of the fire event remedial work shall be performed. Remedial work shall include reseeding and, or replanting lacking areas as needed to meet the original success criteria. Any post-fire event seed application shall be pre-approved by NROC, FWS, and FMZ specialist and include only species native to southern California region. Seeding of ryegrass (*Lolium* spp.) and other non-native or invasive erosion control species shall be avoided.

### 7.0 LITERATURE CITED AND REFERENCED

Hickman, J. C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley. 1400 pp.

**APPENDIX A**  
*Property Assessment Record (PAR)*



**Appendix A is forthcoming.**

